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The Wireless World

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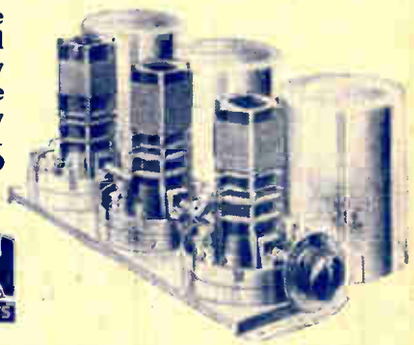

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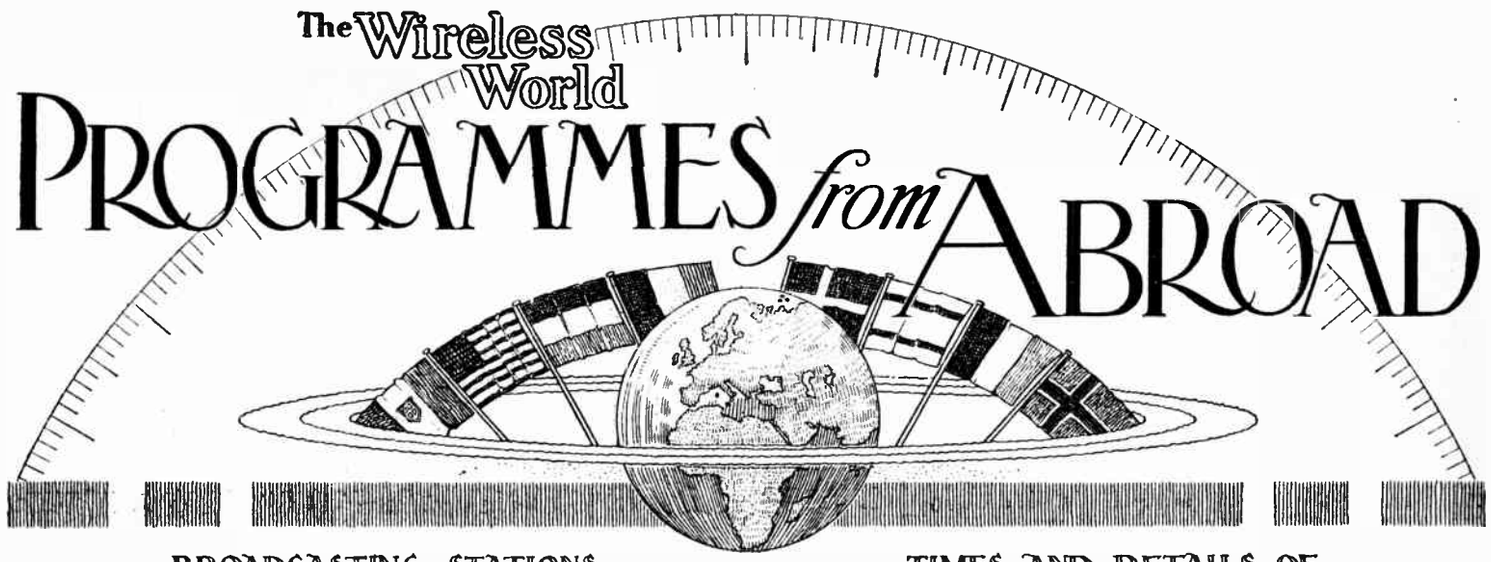
PROGRAMMES from ABROAD



BROADCASTING STATIONS ARRANGED IN ORDER OF WAVELENGTH

TIMES AND DETAILS OF FULL WEEK'S FOREIGN TRANSMISSIONS

Metres.	Kc.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania)	
1875	160	8.5	Huizen (Holland)	
1796	167	40	Lahti (Finland)	
1725	174	75	Radio Paris, C.F.R.	
1635	183.5	60	Zeesen (Königswusterhausen) (Germany). (*S.-W. Stn. DJA on 31.38 m.*)	
1554.4	193	30	Daventry National	
1538	195	7	Ankara (Angora) (Turkey)	
1481	202.5	100	Moscow, RV1 (Old Komintern) (Russia)	
1446	207.5	13	Eiffel Tower, FL, Paris	
1412	212.5	120	Warsaw 1 (Poland)	
1380	217.5	100	Novosibirsk, RV6 (Russia)	
1354.4	221.5	30	Motala (Sweden). (*Relays Stockholm*)	
1304	230	100	Moscow, WZSPS (Trade Union) (Russia)	
1275	235	0.5	Tunis-Kasbah (Tunisia)	
1230	244	0.6	Boden (Sweden). (*Relays Stockholm*)	
1200	250	5	Stamboul (Turkey)	
1200	250	21	Reykjavik (Iceland)	
1190	252	200	Luxembourg (*Testing*)	
1170	256	25	Tashkent, RV11 (Russia)	
1154	260	7.5	Kalundborg (Denmark). (*Relays Copenhagen*)	
1117	268.5	40	Moscow, Popoff RV58 (Russia)	
1083	277	60	Oslo (Norway)	
1071	280	35	Tiflis, RV7 (Russia)	
1035	290	36	Kiev, RV9 (Russia)	
1000	300	100	Moscow (Russia) (*S.-W. Stn. on 50 m.*)	
938	320	20	Kharkov, RV4 (Russia)	
857	350	100	Leningrad (Russia)	
840	357	18.5	Budapest (Hungary)	
825	363.6	50	Sverdlovsk, RV5 (Russia)	
770	389	0.6	Ostersund (Sweden). (*Relays Stockholm*)	
760	395	1.3	Geneva (Switzerland). (*Relays Sottens*)	
720	416.6	20	Moscow, RV2 (Experimental) (Russia)	
690	434.6	1.5	Oulu (Uleaborg) (Finland)	
680	441.2	0.6	Lausanne (Switzerland). (*Relays Sottens*)	
574.7	522	0.7	Hamar (Norway). (*Relays Oslo*)	
574.7	522	7	Ljubljana (Yugoslavia)	
569	527	0.25	Freiburg-im-Breisgau (Germany). (*Relay Stn.*)	
568.1	528	2	Grenoble (France)	
566	530	0.25	Hanover (Germany). (*Relays Hamburg*)	
563	533	16	Wilno (Poland). (*Relay Station*)	
560	536	0.25	Augsburg (Germany). (*Relays Munich*)	
560	536	1.5	Kaiserslauten (Germany). (*Relays Munich*)	
558.6	537	1	Tampere (Finland). (*Relays Helsinki*)	
550	545	18.5	Budapest No. 1 Lakihegy (Hungary)	
542	554	10	Sundsvall (Sweden). (*Relays Stockholm*)	
537.6	558	3	Palermo (Italy)	
533	563	60	Munich (Germany)	
525	571	15	Riga (Latvia)	
517	580	15	Vienna (Rosenhügen) (Austria)	
509	589	15	Brussels No. 1, Velthem (Belgium). (*In French*)	
500.8	599	20	Florence, IFI (Italy). (*Relays Turin*)	
495.8	605	1.2	Trondheim (Norway)	
488.6	614	120	Prague, No. 1 (Czechoslovakia)	
480	625	50	North Regional (Manchester)	
472.4	635	60	Langenberg (Germany)	
465.8	644	1.5	Lyons la Doua, PTT (France)	
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland).	
453.2	662		San Sebastian, EAJ8 (0.6 kW.); Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (*relays Heilsberg*); Klagenfurt (0.5 kW.) (Austria) (*relays Vienna*); Porsgrund (0.7 kW.) (*relays Oslo*). Tromsö (0.1 kW.) Bodö (0.5 kW.) (Norway); Upsala (0.15 kW.) (Sweden) (*relays Stockholm*).	
453.2	662	0.25	Agen (France)	
453.2	662	7	Milan (*Experimental Relays Rome*)	
450.3	666	20	Madona (Latvia)	
447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.); Bjukan (0.15 kW.), Notodden (0.08 kW.) (Norway) (*relays Oslo*).	
441.2	680	50	Rome, 1RO. (*S.-W. Station, 2 RO on 25.4 m.*)	
435.4	689	55	Stockholm, SASA (Sweden)	
430.4	697	2.5	Belgrade (Yugoslavia)	
424.3	707	2	Madrid, EAJ7 (Union Radio). (*After 7.0 p.m.*)	
424.3	707	100	Moscow, Imini Stalina (Russia)	
419.5	715	1.5	Berlin, No. 1, Witzleben (Germany)	
416.4	720.5	5	Rabat (Morocco)	
413	725	60	Athlone (Irish Free State)	
408.7	734	16	Katowitz (Poland)	
403.8	743	25	Sottens (Radio Suisse Romande) (*Switzerland*)	
398.9	752	25	Midland Regional	
394.2	761	12	Bucharest (Roumania)	
389.6	770	120	Leipzig (Germany)	
385.1	779	8	Toulouse (Radiophonie du Midi) (France)	
385.1	779	10	Stalino, RV26 (Russia)	
381	788	16	Lwow (Lemburg) (Poland)	
376.4	797	50	Scottish Regional (Falkirk)	
372.2	806	1.5	Hamburg (Germany)	
370.1	810.5	0.8	Radio, LL, Paris	
368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (*relays Lahti*); Kharkov, RV20 (10 kW.) (Russia).	
365.8	821	0.7	Fredriksstad (Norway). (*Relays Oslo*)	
364.1	824	1	Bergen (Norway)	
363.6	825	13	Algiers (Algeria)	
360.6	832	60	Mühlacker (Stuttgart) (Germany)	
355.9	843	50	London Regional (Brookmans Park)	
352.1	852	7	Graz (Austria). (*Relays Vienna*)	
348.8	860	7.6	Barcelona, EAJ1 (Spain)	
348.8	860	10	Leningrad, RV70 (Russia)	
345.2	869	11.5	Strasbourg, PTT (France)	
341.7	878	35	Brno (Brunn) (Czechoslovakia)	
338.2	887	15	Brussels II, Velthem (Belgium). (*In Flemish*)	
335	896	5	Cadiz (Spain)	
334.4	897	1.9	Poznan (Poland)	
331.5	905	50	Milan (Italy). (*Relays Turin*)	
328.2	914	60	Poste Parisien (France)	
325	923	60	Breslau (Germany)	
321.9	932	10	Göteborg (Sweden). (*Relays Stockholm*)	
318.8	941	0.25	Dresden (Germany). (*Relays Leipzig*)	
318.8	941	1.5	Naples, INA (Italy). (*Relays Rome*)	
315.8	950	1.6	Marseilles, PTT (France)	
312.8	959	1.7	Cracow (Poland)	
312.8	959	10	Genoa, IGE (Italy). (*Relays Turin*)	
309.9	968	1	Cardiff	
307	977	0.7	Radio Vitus (Paris). (*S.-W. Stn. on 43.75 m.*)	
307	977	0.75	Zagreb (Yugoslavia)	
304	986	13	Bordeaux Lafayette, PTT (France)	
301.5	995	50	North National (Manchester)	
298.8	1004	11	Tallinn (Esthonia)	
296.1	1013	20	Hilversum (Holland). (*7 kW. before 4.40 p.m.*) (*Exchanges wavelengths with Hilversum every three months.*)	
293.5	1022	0.7	Limoges, PTT (France)	
293.5	1022	2.6	Kosice (Czechoslovakia)	
291	1031	10	Viipuri (Viborg) (Finland). (*Relays Helsinki*)	
288.3	1040	50	Scottish National (Falkirk)	
288.3	1040	1	Bournemouth (*Relay Station*)	

BROADCASTING STATIONS ABROAD (In Order of Wavelength).

Metres.	Kc.	kW.	Station.	Tuning Positions.
285.1	1052	0.7	Lyons (Radio-Lyon) (France)	
283.6	1058	0.5	German Relays (Berlin, Magdeburg, Stettin)	
283.6	1058	0.5	Innsbruck (Austria). (*Relays Vienna*)	
282.2	1063	2	Lisbon CT 1AA (Portugal). (*Short-wave Station on 31.25 m.*)	
281.2	1067	0.75	Copenhagen (Denmark)	
278.8	1076	13.5	Bratislava (Czechoslovakia)	
276.5	1085	60	Heilsberg (Germany)	
273.7	1096	7	Turin (Italy)	
271.5	1105	1.3	Rennes, PTT (France)	
269.8	1112	20	Bari (Italy)	
269.8	1112	0.25	Bremen (Germany). (*Relays Hamburg*)	
267.6	1121	1.5	Valencia (Spain)	
265.8	1128.5	1.3	Lille, PTT (France)	
263.8	1137	11.2	Moravska Ostrava (Czechoslovakia)	
261.5	1147	50	London National (Brookmans Park)	
259.3	1157	17	Frankfurt-a.M. (Germany)	
259.3	1157	2.3	Trier (Germany). (*Relays Frankfurt*)	
257.1	1167	10	Hörby (Sweden). (*Relays Stockholm*)	
255.1	1176	0.7	Toulouse, PTT (France)	
253.1	1185	5	Gleiwitz (Germany). (*Relays Breslau*)	
252	1193	1	Barcelona, EAJ15 (Assoc. Nat.) (Spain)	
249.6	1202	0.8	Juan-les-Pins, Nice (France)	
247.7	1211	10	Trieste (Italy)	
245.9	1220	0.12	Swansea	
245.9	1220		Berne (0.5kW.) (Switzerland)(*relays Beromünster*); Eskilstuna (0.2 kW.), Säffle (0.4 kW.) (Sweden) (*relays Stockholm*); Cassel (0.25 kW.) (Germany) (*relays Frankfurt*); Linz (0.5 kW.) (Austria) (*relays Vienna*); Pietarsaari (0.5 kW.), Turku (Abo) (0.5 kW.) (Finland) (*relays Helsinki*); Schaerbeek (0.1 kW.) (Belgium).	
244.1	1229	0.5	Basle (Switzerland). (*Relays Beromünster*)	
242.3	1238	1	Belfast (N. Ireland)	
240.6	1247	0.5	Stavanger (Norway)	
238.9	1256	2	Nürnberg (Germany). (*Relays Munich*)	
238	1260	1	Nimes (France)	
237.2	1265	3	Bordeaux, Sud-Ouest (France)	
235.5	1274	0.5	Kristiansand (Norway)	
235	1283	1.65	Lodz (Poland). (*Relay Station*)	
232.2	1292	0.25	Kiel (Germany). (*Relays Hamburg*)	
230.6	1301	—	Swedish Relay Stations. (Malmö, Norrköping, Karlstad and Trollhätten).	
227.4	1319	0.5	Flensburg (Germany). (*Relays Hamburg*)	
225.9	1328	10	Fécamp, Radio-Normandie (France)	
224.4	1337	1	Cork (Irish Free State)	
222.9	1346	0.15	Hüdiksvall (Sweden)	
219.9	1365	1.5	Béziers (France)	
218.5	1373	0.2	Plymouth	
218.5	1373	0.5	Salzburg (Austria). (*Relays Vienna*)	
217	1382	0.5	Königsburg (East Prussia) (Germany)	
217	1382	0.25	Karlstad (Sweden)	
215.6	1391	0.1	Brussels, Radio-Chatelineau (Belgium)	
215.6	1391	0.2	Halmstad (Sweden)	
214.3	1400	1	Aberdeen	
211.3	1420	1	Newcastle	
209.8	1430	0.8	Magyarovar, Miskolcz and Pecs (Hungary)	
207	1450	0.15	Boras (Sweden)	
206	1460	0.2	Ornsköldsvik (Sweden)	
204.1	1470	0.2	Gävle (Sweden)	
202.7	1480	0.25	Kristineham (Sweden)	
201.3	1490	0.25	Hälsingborg (Sweden)	
195	1530	0.2	Karlskrona (Sweden)	

PRINCIPAL SHORT-WAVE STATIONS.

(N.B.—Times of Transmission, given in parentheses, are approximate only and represent G.M.T.)

Metres.	Kc.	Call Sign.	Station.	Tuning Positions.
80.0	3,750	2RO	Rome	
70.2	4,273	RW15	Khabarovsk (Russia). (*Daily* 09.00–12.00)	
63.0	4,760	CT3AR	Funchal (Madeira). (*Wed.* 20.30, *Sun.* 14.30)	
62.56	4,795	VE9BY	London, Ont. (Canada). (*Sun.* 06.00)	
62.5	4,800	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 24.00)	
58.3	5,146	PMY	Bandoeng (Java). (*Daily* 12.20 *and* 07.00)	
58.0	5,172	OK1MPT	Prague (Czechoslovakia). (*Tues. and Fri.* 19.30.)	
54.52	5,502	W2XBH	Brooklyn, N.Y. (U.S.A.). (*Relays WCGU*)	
52.7	5,690	FIUI	Tananarive, P.T.T. (Madagascar)	
52.5	5,714	HCJB	Quito (Ecuador). (*Daily* 12.30)	
51.22	5,857	XDA	Chapultepec (Mexico)	
50.6	5,930	HKO	Medellin (Colombia)	
50.26	5,970	HVJ	Vatican State, Rome. (*Daily* 19.00)	
50.0	6,000	ZL3ZC	Christchurch (New Zealand). (*Wed.* 03.00, *Sat.* 07.30.)	
50.0	6,000	—	Bucharest (Roumania)	
50.0	6,000	RW59	Moscow (*Relays Trades Union Stn.*)	
50.0	6,000	EAR25	Barcelona, Radio Club (Spain). (*Sat.* 20.00)	
49.96	6,005	HRB	Tegucigalpa (Honduras). (*Daily ex. Sun.* 00.00–05.00.)	
49.83	6,020	W9XF	Chicago, Ill. (U.S.A.). (*Relays WENR*)	
49.8	6,023	XEW	Mexico City (Mexico). (*Daily* 01.00)	
49.67	6,042	W2XAL	Coytesville, N.J. (U.S.A.). (*Relays WRNY.*)	
49.6	6,048	W3XAU	Philadelphia, Pa. (U.S.A.). (*Relays WCAU.*)	
49.59	6,050	VE9HX	Halifax (Nova Scotia). (*Relays CHNS*)	
49.58	6,050	GSA	Empire Broadcasting, Zones 1–5	
49.5	6,060	VQ7LO	Nairobi (Kenya Colony). (*Daily* 16.30)	
49.5	6,060	W8XAL	Mason, Ohio (U.S.A.). (*Relays WLW*)	
49.43	6,069	VE9CS	Vancouver, B.C. (Canada)	
49.4	6,072	OXY	Skamlebaek (Denmark). (*Relays Copenhagen.*)	
49.4	6,072	UOR2	Vienna. (*Tues.* 13.00, *Thurs.* 15.00, *Sat.* 23.00.)	
49.34	6,080	W2XCX	Kearny, N.J. (U.S.A.). (*Relays WOR*)	
49.34	6,080	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
49.22	6,095	VE9GW	Bowmanville, Ont. (Canada). (*Daily* 20.00)	
49.2	6,098	ZTJ	Johannesburg (S. Africa). (*Weekdays* 09.00, 11.00 [*Sat.* 14.30] *and* 17.00, *Sun.* 13.00 *and* 17.30.)	
49.18	6,100	W3XAL	Bound Brook, N.Y. (*Relays WJZ*)	
49.1	6,110	VUC	Calcutta, India. (*Daily* 13.00)	
49.02	6,120	W2XE	Long Island, N.Y. (U.S.A.). (*Relays WABC.*)	
48.86	6,140	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
48.8	6,147	VE9CL	Winnipeg (Canada). (*Daily ex. Sun.* 00.30)	
48.65	6,167	XIF	Mexico City (Mexico)	
48.35	6,205	HKC	Bogota (Colombia). (*Daily* 15.00)	
49.2	6,220	2RO	Rome (Italy)	
48.05	6,243	HKD	Barranquilla (Colombia). (*Weekdays* 23.45)	
48.0	6,250	CN8MC	Casablanca (Morocco). (*Relays Rabat*)	
47.0	6,382	HC1DR	Quito, Ecuador. (*Daily* 01.00)	
46.69	6,425	W3XL	Bound Brook, N.J. (U.S.A.). (*Relays WJZ irregular.*)	
46.67	6,426	VE9BY	London, Ont. (Canada). (*Sat.* 01.00 *Sun.* 02.00.)	
45.38	6,611	REN	Moscow (*Relays Trade Union Stn.*)	
45.0	6,667	FM8KR	Constantine (Algeria). (*Mon. and Fri.* 23.00.)	
45.0	6,667	TGW	Guatemala City (Central America). (*Daily* 03.00.)	
43.75	6,860	—	Radio Vitus, Paris. (*Daily* 20.30)	
43.0	6,970	EAR110	Madrid. (*Tues. and Sat.* 22.30)	
41.7	7,195	VS1AB	Singapore (Malay States). (*Sun. and Wed.* 15.30.)	
41.6	7,211	EAR58	Teneriffe (Radio Club) (Canary Islands)	
41.5	7,230	HB9D	Zurich (Radio Club) (Switzerland). (*1st and 3rd Sun.*)	
41.0	7,320	HSP2	Bangkok (Siam). (*Mon.* 14.00)	
40.3	7,443	HBQ	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.45).	
39.7	7,556	HKF	Bogota (Colombia). (*Westinghouse Labs.*)	
39.4	7,612	X26A	Nuevo Laredo (Mexico). (*Thurs.* 16.00)	
38.7	7,797	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.15.)	
36.92	8,125	PLW	Bandoeng (Java). (*Daily* 10.00–14.00)	
34.68	8,650	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 23.00)	
34.68	8,650	VE9BY	London, Ont. (Canada). (*Mon.* 21.00)	
33.50	8,928	TGX	Guatemala City (S. America)	
32.26	9,300	—	Rabat (Morocco). (*Sun.* 21.00)	
31.58	9,500	PRBA	Rio de Janeiro (Brazil). (*Daily* 21.30)	
31.55	9,510	VK3ME	Melbourne (Australia). (*Wed. and Sat.* 10.00.)	
31.54	9,510	GSB	Empire Broadcasting, Zones 2, 4, 5	
31.48	9,530	W2XAF	Schenectady, N.Y. (U.S.A.) (*Relays WGY*)	
31.38	9,560	DJA	Zeesen (Germany). (*Daily* 13.00)	
31.35	9,570	SRI	Posen (Poland). (*Tues. and Thurs.* 17.30)	
31.35	9,570	W1XAZ	East Springfield, Mass. (U.S.A.). (*Relays WBZ.*)	
31.3	9,582	W3XAU	Philadelphia, Pa. (U.S.A.). (*Daily ex. Thurs. and Fri.* 21.00.)	
31.3	9,580	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.15.)	
31.29	9,585	GSC	Empire Broadcasting, Zone 3	
31.28	9,590	VK2ME	Sydney (Australia). (*Sun.* 10.00)	
31.25	9,598	CT1AA	Lisbon (Portugal). (*Tues. and Fri.* 22.00–24.00.)	
31.10	9,640	HS2PJ	Bangkok (Siam). (*Mon.* 02.00–05.00)	
30.43	9,869	EAQ	Aranjuez (Spain). (*Daily* 23.30, *Sat.* 18.00)	
30.0	10,000	—	Belgrade (Yugoslavia). (*Mon.* 19.00)	
29.3	10,238	T14NRH	Heredia (Costa Rica). (*Daily* 22.00 *and* 02.00.)	
28.98	10,350	LSX	Buenos Aires (Argentina). (*Daily* 20.30)	
26.83	11,180	CT3AQ	Funchal (Madeira). (*Tues. and Thurs.* 10.30–12.30.)	
25.63	11,700	FYA	Pontoise (France). (*Colonial Sta. E-W, daily* 20.00.)	
25.6	11,720	VE9JR	Winnipeg (Canada). (*Daily ex. Sat. and Sun.* 17.45.)	
25.53	11,750	GSD	Empire Broadcasting, Zones 1 & 4	
25.5	11,760	XDA	Chapultepec (Mexico). (*Daily* 20.00)	
25.4	11,810	VE9GW	Bowmanville (Canada). (*Daily* 18.00)	
25.4	11,810	2RO	Prato Smeraldo, Rome. (16.00 *and* 19.30)	
25.34	11,840	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
25.28	11,865	GSE	Empire Broadcasting, Zone 2	
25.27	11,870	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
25.2	11,905	FYA	Pontoise (France). (*Colonial Stn. N-S*)	
23.38	12,830	—	Rabat (Morocco). (*Sun.* 11.30)	
20.5	14,630	XDA	Chapultepec (Mexico). (*Daily* 19.30)	
19.9	15,075	T14NRH	Heredia (Costa Rica). (*Sat., Sun., Mon.* 16.00 *and* 21.00.)	
19.84	15,120	HVJ	Vatican State, Rome. (*Daily* 10.00)	
19.81	15,140	GSF	Empire Broadcasting, Zone 5	
19.73	15,200	DJB	Zeesen (Germany). (*Daily* 13.00–17.00)	
19.72	15,210	W8XK	East Pittsburg, Pa. (U.S.A.) (*Relays KDKA.*)	
19.68	15,244	FYA	Pontoise (France). (*Colonial Stn. E-W*)	
19.56	15,340	W2XAD	South Schenectady, N.Y. (U.S.A.) (*Daily* 18.00.)	
16.9	17,750	HSP	Bangkok (Siam). (*Sun. and Tues.* 21.00)	
16.88	17,770	GSG	Empire Broadcasting, Zone 2	
16.87	17,780	W3XAL	Bound Brook, N.J. (*Weekdays* 13.00)	
16.57	18,105	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
14.47	20,730	LSY	Buenos Aires (Argentina). (*Sun.* 21.00)	
13.97	21,470	GSH	Empire Broadcasting, Zone 3 (*Daylight working.*)	
13.92	21,540	W8XK	East Pittsburg (*Relays KDKA.*)	

FOREIGN SUNDAY PROGRAMMES

APRIL THE NINTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Service from St. Martin's-in-the-Fields. Orchestral concert from Hastings.
LONDON REGIONAL	Sunday orchestral concert.
WEST REGIONAL	Service in Welsh from the Welsh Presbyterian Church, Clapham Junction. Orchestral concert from Cardiff.
SCOTTISH REGIONAL	Vocal and instrumental concert.

ABROAD

BORDEAUX LAFAYETTE	3 p.m. Concert from the Conservatoire, Paris.
BRATISLAVA	8 p.m. Operetta: "The Corsair" (Jindrich Vojacek) (relayed also by **Prague**).
BRUSSELS (No. 1)	8 p.m. Operetta: "The Land of Smiles" (Lehar), from Verviers.
FRANKFURT	7 p.m. The Station Orchestra, conducted by Rossbaud.
HAMBURG	8 p.m. The Philharmonic Orchestra, conducted by R. Richter.
HUIZEN	9 p.m. The Maastricht Municipal Orchestra.
LANGENBERG	8.15 p.m. Opera: "Don Giovanni" (Mozart).
LEIPZIG	8 p.m. Opera: "Die Königskinder" (Humperdinck), from Dessau.
MUNICH	6.35 p.m. Bach's St. Matthew Passion music.
ROME	9 p.m. Opera: "Mignon" (Thomas), from the Scala, Milan (relayed by **Milan, Genoa, Florence, Trieste, and Turin**).
STOCKHOLM	8.35 p.m. Acts 2 and 3 of "Parsifal" (Wagner).

Commencing with programmes for Sunday, April 9th, all times are reduced to British Summer Time.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **CORK, 1,337 kc/s, 224.4 mstres.—8.30 p.m.,** Time Signal. **8.31,** The Station Orchestra. **8.50,** The Adventures of Ellis Palmer by L. P. Mitchell and Company. **9.35,** Pianoforte Recital by Dr. Karl Lenzen. **9.50,** The Station Orchestra. **10.15,** Pianoforte Recital (contd.). **10.30,** Ceilidhe Music relayed from the Mansion House. **11.0,** Time Signal, News, Weather Report and Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**5.30 to 6.30,** Concert conducted by Biagio Grimaldi, relayed from the Teatro Commale Piccinni. The Transfiguration of Jesus Christ—Oratorio for Soloists, Choir, Orchestra and Organ (Perosi): Fantasia, Op. 80, for Pianoforte, Choir and Orchestra (Beethoven). **8.0,** Sports Notes and Giornale Radio. **8.30,** Time and Announcements. **8.35** (approx.), Variety Concert. In the interval, Talk. **10.30,** Concert relayed from the Grand Hotel Moderno. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**11.30 a.m.,** Organ Recital from **Berlin (Witzleben). 12 Noon,** See **Leipzig.** In the interval at **12.55 p.m.,** Nauen Time Signal. **2.0,** Talk for Parents. **2.20,** Programme for Children. **3.0,** Talk: A German Artist in Italy. **3.30,** Concert of Light Music by Hans Bastian and his Orchestra. **4.30,** Talk: The German Folk-lore Museum. **5.0,** Recital of German Folk Songs (Reznicek), by the Station Mixed Choir and the Station Orchestra. **5.30,** Reading (Wilhelm von Schramm), by Gustav Waldau. **6.0,** Sextet in A Flat, Op. 86 (Schmalstich), for Pianoforte and Wind Instruments, the Composer at the Pianoforte. **6.30,** Reading: Bekenntnis zum Deutschtum (Hans Kyser). **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.0,** Song Recital by Herbert Janssen. **8.30,** String Quartet in E Minor (Verdi), by the Brunier Quartet. **9.0,** Variety Concert. **10.0,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Programme from **Berlin (Witzleben). 12 Midnight** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**12 Noon,** Demonstration of the National Socialist Party, relayed from the Schauspielhaus. **2.0 p.m.,** Dialogue for Parents. **2.30,** Programme for Children. **3.30,** Gramophone Concert of Variety Music. **4.10,** Reading (Hans Schwarz van Berk). **4.30,** Wind Instrument Concert. **6.0,** An Easter Excursion—a Radio Sequence. **6.30,** Quartet in A, Op. 18, No. 5 (Beethoven). **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.0,** Der Weg zu Gott—a Radio Poem (Tatjana Petschnikov), Music by Herbert Windt. **9.5,** Hymn for Soprano, Choir, Orchestra and Organ (Heinz Schubert). **9.40,** Weather and News. **10.0,** Report on the Second Half of the Water Polo Match Berlin v. Madgeburg, relayed from the Wellenbad. Lunapark, followed by Programme of Dance Music. **12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 11 kW.—**8.0 p.m.,** An Operetta (Vojacek). **10.15,** See **Prague. 11.30** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by **Gleiwitz, 1,184 kc/s, 253 metres.—12 Noon,** Concert by the Silesian Philharmonic Orchestra. **2.0 p.m.,** Announcements. **2.10,** Agricultural Talk. **2.25,** Talk: Expressiveness in Speech. **2.40,** Talk: Easter in Germany. **3.5,** Programme for Children. **3.35,** Concert by the Silesian Symphony Orchestra, conducted by Gerhard Ewald Rischka: Overture, Peter Schmoll (Weber); Minuet in E flat (Haydn); Military March (Schubert); Ballet Music from Rienzi (Wagner); Mozartiana (Tchaikovsky); Norwegian Bridal Procession (Grieg); Selection from Der Rosenkavalier (R. Strauss); Waltz, Morgenblätter (Joh. Strauss). **5.0,** Reading (Wilhelm Wirbitzky). **5.30,** Talk: Germanic and Biblical Beliefs in the Redemption. **5.55,** Weather for Farmers and Sports Notes. **6.15,** Löns Song Recital by the Young Hitlerites Choir, conducted by Helmut Haselbach. Soloist: Berta Ebner-Oswald (Soprano). **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.0,** See **Hamburg. 10.0,** Time, Weather, News, Sports Notes and Programme Announcements. **10.30,** Concert from **Berlin (Witzleben). 12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**1.30 p.m.,** Agricultural Talk. **2.0 to 2.15,** See **Prague. 4.0,** See **Moravská-Ostrava. 5.30,** Concert of Folk Music by a Village Band. **6.0 to 6.45,** German Transmission: Pianoforte Concerto, No. 2, in B (Brahms) by the Station Orchestra, conducted by B. Bakala and F. Fretzler. **7.0,** See **Moravská-Ostrava. 8.0,** See **Bratislava. 10.15,** See **Prague. 11.30** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**10.0 a.m.,** Concert by the Small Orchestra, conducted by P. Leemans. Soloist: F. Wigy (Violin). Overture, Phèdre (Massenet); Serenade (Saint-Saëns); Caucasian Suite (Ippolitov-Ivanov); Polonaise for Violin (Wieniawsky); Interlude; Songs by M. Dumont; Ballet égyptien (Luigini). **11.0,** Concert by the Small Station Orchestra, conducted by P. Leemans. Overture, Figaro (Mozart); Waltz-Scherzo (Tchaikovsky); Suite from Les Erynnies (Massenet); Interlude; Songs by Mlle. M. Dumont; Serenade (Marcucci); Waltz (Burke); Selection from Paganini (Lehár). **12 Noon,** Concert by Mickey's Club Jazz Attraction, conducted by L. Langlois. **1.0 p.m.,** Journal Parlé. **1.10,** Gramophone Concert of Light Music. **1.30,** Monologues by Olga Augu. **2.50,** Report on the Belgium v. Holland Football Match at Antwerp. **5.0,** Dance Music from the Saint Sauveur Palais de Danse. **5.30,** Football Match Results. **6.30,** Song Recital by F. Auspach. Invitation au voyage (Duparc); Extase (Duparc); Clair de lune (Fauré); Les berceaux (Fauré); L'ombre des arbres (Debussy); Mandoline (Debussy); Five Popular Greek Melodies (Ravel); Marionettes (Pierné); La ronde autour du monde (Pierné). **7.0,** Gramophone Records. Entr'acte from Rosamund (Schubert); Brandeburg Concerto (Bach). **7.15,** Religious Address. **7.30,** Talk on Music. **8.0,** The Land of Smiles—Operetta in Three Acts (Lehár), relayed from the Theatre Verviers. In the intervals at **9.0,** Monsieur Leprobe—Sketch (Emile-André Robert); at **10.15,** Journal Parlé, and at **10.25,** Light Gramophone Music. **11.15,** Dance Music on Gramophone Records.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. **10.0 a.m.,** Extracts from the Quartet in B Flat, Op. 130 (Beethoven), on Gramophone Records. **10.30,** Sixth Concert of the Société des Nouveaux Concerts d'Anvers. Conductor: Erich Kleiber. Brandenburg Concerto, No. 3 (Bach); Entr'acte and Ballet Music from Rosamund (Schubert); Symphony No. 3—the Eroica (Beethoven). **12.30 p.m.,** Variety Music on Gramophone Records. **1.0,** Le Journal Parlé. **1.10,** Concert by Mickey's Club Jazz Attraction. **3.0** (approx.), Running Commentary on the Belgium v. Holland Football Match, relayed from **Antwerp. 5.0,** Concert by the Symphony Orchestra, conducted by Meulemans. Overture, Rienzi (Wagner); Selection from La Traviata (Verdi); Serenade for 'Cello and Orchestra (Godard); Selection from Gretna Green (Guiraud); Romance for Violin and Orchestra (De Taye); Rhapsody No. 14 (Liszt); Selection from Le Roi de Lahore (Massenet). In the interval at **5.30** (approx.), Football Results. **6.0,** Organ Recital by J. Jong, relayed from the Carmelite Church. Prelude and Fugue in A (Bach); Slumber Song (Grey); March from Parsifal (Wagner). **6.30,** Opera Music on Gramophone Records. **7.15,** Religious Address. **7.30,** Music Review. **8.0,** Concert by the Symphony Orchestra, conducted by Meulemans. Soloist: Leopold Roosen (Baritone). Overture, Phèdre (Massenet); Song from Messidor (Bruneau); Will o' the Wisp Minuet, from The Damnation of Faust (Berlioz); Aria from I Pagliacci (Leoncavallo); Sicilienne and Intermezzo from Cavalleria rusticana (Mascagni); Baritone Solo Chant hindou (Bemberg); Ballet Music from Samson and Delilah (Saint-Saëns); Song from Benvenuto Cellini (Diaz); Ballet Music from Marouf (Rabaud). **9.0,** Reading. **9.15,** Concert, relayed from the Grand Hotel, Antwerp. **10.0,** Le Journal Parlé. **10.10,** Light Music on Gramophone Records. **10.45,** Concert, relayed from the Meuline Hall, Antwerp.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**9.0 a.m.,** Programme for Workers. **9.30,** Religious Programme. **10.15,** Concert of Military Music. **11.0,** Light Music on Gramophone Records. **12 Noon,** Radio Journal. **12.15 p.m.,** Popular Music on Gramophone Records. **3.0,** Programme for Peasants. **4.0,** Concert of Romanian Music and Light Music by the Marco Orchestra. **5.0,** Radio Journal. **5.15,** Concert by the Marco Orchestra (contd.). **6.0,** Talk on Romania: Her Army. **6.20,** Agricultural and Zoological Talk. **6.55,** Time Signal. **7.0,** Operetta Music. In the intervals: Radio Journal.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW. Also relayed on **840 metres** from **7.30 to 12 Midnight.—11.0 a.m.,** Sacred Music, followed by Variety Concert by the Budapest Concert Orchestra, conducted by Otto Berg. **2.0,** Popular Music on Gramophone Records. **3.0,** Agricultural Talk. **3.45,** Programme for Schools. **4.30,** News, followed by Military Band Concert. **5.45,** Reading. **6.15,** Concert by a Mixed Choir. **7.15,** Sports Notes. **7.30,** Hallo Tokio—Talk with Gramophone Illustrations. **8.0,** A Play. **10.30,** Weather Report and News. **10.40,** Light Music and Cigany Music, relayed from the Café Patria. Soloist: Gyala Szantho (Folk Songs).

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,057 kc/s, 281 metres; 0.75 kW.; and **KALUNDBORG, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Town Hall Chimes. **12.1 p.m.,** Concert from the Axelborg Studio. The Radio Orchestra, conducted by Emil Reesen. Four Movements from the Serenade in D, No. 9 (Mozart); Movement from the Pastoral Symphony (Beethoven); Dance from Orpheus and Eurydice (Gluck); Overture, The Italian Girl in Algiers (Rossini); Three Dances from The Bartered Bride (Smetana). **1.0 p.m.,** (from the Aarhus Studio), Dialogue in English: The Universities of Oxford and Cambridge. **1.20 p.m.,** Talk in German: Provincial Art in Central Germany. **1.40,** Talk in French. **2.0 to 2.25,** Interval. **2.25,** Gramophone Concert of Operatic and Light Music. **2.55,** Programme for Children. **3.25,** Concert conducted by Launy Gröndahl, relayed from the Axelborg Studio. **5.0** (also relayed by **Skanideback** on **31.51 metres**), Divine Service from Christiansborg Castle Church. **6.20,** Talk: Literature and its Significance to the Peasant. **6.50,** Weather and News. **7.15,** Time and Sports Notes. **7.30,** Talk. **8.0,** Town Hall Chimes. **8.1,** Song Recital with Guitar Accompaniment. **8.15,** Concert of Modern Music by Louis Preil's Instrumental Ensemble. **8.45,** The Hansen Family—Sketch (Jens Locher). **9.0,** Concert (contd.). **9.30,** Reading. **9.45,** Concert (contd.). **10.10,** News. **10.20,** Concert (contd.). **11.0,** Dance Music from the Wivex Restaurant. In an interval at **12 Midnight,** Town Hall Chimes. **12.30 a.m. (Monday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,327 kc/s, 225.9 metres; 10 kW.—**4.0 to 8.0 p.m.,** Programme in English by the I.B.C. C. Danvers-Walker, B. McNabb, and F. Lamping announcing. **4.0,** Programme for Children. **4.30,** Orchestral Music. **5.0,** International Broadcasting Club Concert for Aberdeen Listeners: The Entry of the Gladiators (Fucik); Song: The Galloping Major; Harmonica and Zither Duet: The Skirl of the Pipes (Traditional); Three Fishers went sailing, by the Aberdeen Fisher Girls' Choir; Caller O'u by the Aberdeen Fisher Girls' Choir; Harmonica and Zither Duets: (a) The Laird o' Dunblair (Traditional). (b) The Rose in the Heather (Traditional); The Bonnie Briar Bush; Two Items by the Aberdeen Strathspey and Reel Society: (a) Lassie, look before you leap. (b) Mrs. Ferguson of Raith's delight; Father of Victory; Song: Jean, Jean from Aber-Aberdeen; Bagpipe Solo: Eightsome Reel; Fighting Mac. **6.0,** Light Orchestral Music: Suite, Americana (Thurban); Kisses in the Dark (de Michaeli); Gipsy Moon (Borganov); In the Sudan (Schek); Lazy Pete (Kernstein); Black Eyes (Ferraris); The Golden Musical Box. **6.30,** Concert of Light Music by the I.B.C. (Ireland), Ltd. The Child from Alsace (Lehár); Songs: (a) Phil the Fluter's Ball (French), (b) Boots (OrtCall); Selection from The Beggar's Opera (Gay); Songs: (a) Father O'Flynn (Stanford), (b) The Smuggler's Song (Mortimer); You are my Heart's Delight (Lehár). **7.0,** Concert of Dance Music: The Knave of Diamonds; Electrical Transcription of an American Broadcast; Fit as a Fiddle; Electrical Transcription of an American Broadcast; The Juggler; Electrical Transcription of an American Broadcast; Thompson's Old Grey Mule. **7.30,** Organ Recital: The Kiss Waltz (Dubin-Burke); Roses of Yesterday Berlin); Duet: Moonlight reminds me of you (Kahn); Tip-toe through the Tulips (Dubin); Moonlight, Night and you (Rensen); Duet: Marigold (Mayerl); Drowsy Waters (Ailan); Many happy returns of the Day (Burke). **8.0,** Variety Concert. **9.0** till Close Down. Programme in English by the I.B.C. **9.0,** Military Band Concert: Overture, Raymond (Thomas); Voice of the Guns;

Reminiscences of Wales; March of the Mannikins; A Life on the Ocean; Vimy Ridge; A Lancashire Ramble; Old Comrades' March. **9.30**, Concert of Light Music: Ke-sako; Baritone Solo: The Village Blacksmith (Weiss); Soprano Solo: I'm called little Buttercup, from H.M.S. Pinafore (Gilbert and Sullivan); Violin Solo: Caprice basque (Sarasate); Baritone Solo: The Windmill (Nelson); Soprano Solo: Annie Laurie (Traditional); Spanish Gipsy Dance. **10.0**, Light Orchestral Concert, with Songs: Sleigh Bells (Lindeman); Blackbird's Song (Scott); I think of you, my Sweet (Haydn Wood); French Comedy Overture (Bela); Down in the Forest (Landon Ronald); O dry those Tears (del Riego); Fairy on the Clock (Myers). **10.30**, Concert of Popular Music: Can't we meet again?; I wish I knew a bigger word than love; Pale Volga Moon; Gipsy Moon; What did I give in return?; Hold up your Hand; Sweetheart; Selection from H.M.S. Pinafore (Gilbert and Sullivan). **11.0**, Concert of Light Music: Colonel Bogey (Alford); Song of the Sea (Künneke); Song of the Vagabonds (Friml); Wee Macgregor Patrol (Amers); Waltz, O Frühling wie bist du so schön? (Lincke); Just once for all time (Heymann); Live, laugh, and love (Heymann); Sari Waltz (Kalman). **11.30**, Variety Concert by the I.B.C. (Ireland, Ltd.: Mignonette (Friml); Songs: (a) Acushla Machree, (b) Love will find a way (Fraser); Roses from the South (Joh. Strauss); Songs (a) Rose of Killarney, (b) Bohemia (Ross); Selection from Bow Bells (Sullivan). **12.0 midnight**, International Broadcasting Club Concert for Aberdeen Listeners: The Entry of the Gladiators (Fucik); Song, The Galloping Major; Harmonica and Zither Duet, The Skirl of the Pipes (Traditional); Two Songs by the Aberdeen Fisher Girls' Choir, (a) Three Fishers went sailing, (b) Caller O'u; Harmonica and Zither Duets, (a) The Laird o' Dunblair (Traditional), (b) The Rose in the Heather (Traditional); The Bonnie Briar Bush; Two Items by the Aberdeen Strathspey and Reel Society, (a) Lassie, look before you leap, (b) Mrs. Ferguson of Raith's Delight; Father of Victory; Song, Jean, Jean from Aberdeen; Bagpipe Solo, Eightsome Reel; Fighting Mac. **1.0**, Accordion Solos: Medley of English Airs (arr. Cuvelier); Mason's Apron (Reel); The Minstrel Boy; Blue Bells (Beaton); Medley of Scotch Airs (arr. Cuvelier); Rakes of Clonmel Jig; The Irish Washerwoman; Sailor's Hornpipe; Prince Charlie (Beaton). **1.30**, American Songs: Can't we talk it over; Minnie the Moocher; Dinah; Orchestra; Gold Diggers of Broadway; Fortunes galore; She's too good for me; The Railroad Boomer. **2.0**, Dance Music by the Jacolians: In London on a Night like this; Without my gal; Let me sing and I'm happy; Sing a little Theme Song; Lorette; I still get a thrill; Sing you sinners; High Society Blues; If anything happened to you; Gone; To my Mammy; When the little Red Roses; By your Side; Springtime in the Rockies; Yours sincerely. **2.57**, I.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—10.15 a.m.,** Pianoforte and Violin Recital by Rudolf Racky and Fredrich Seufert. **11.15**, Final Report of the Frankfurt Winter Relief Committee. **11.40**, Talk: The State and Public Holidays. **12 Noon**, See **Munich. 1.0**, See **Langenberg. 2.30**, Agricultural Notes. **2.40**, Agricultural Programme. **3.30**, Programme for Young People. **4.30**, Orchestral Concert, conducted by Hans Rosbaud. Soloist: Lulu Rötter (Soprano). Part I—Wagner Music: Overture, Tannhäuser; Aria, Dich teure Halle, from Tannhäuser; Prelude to Tristan und Isolde; Three Songs to Poems by Mathilde Wesendonck; Ride of the Valkyries from The Valkyries. Part II—Symphony in C, Op. 61 (Schumann). **6.0**, Concert of Passion Music, relayed from **Saarbrücken. 6.50**, Sports Notes. **7.0**, Transmission for all German Stations—Concert by the Station Orchestra, conducted by Rosband: Overture, Abu Hassan (Weber); Three Movements from the Sinfonietta in F, Op. 80 (Raff); Andante from the Concerto for Organ and Orchestra, Op. 177 (Rheinberger); Musikalische Dorfgeschichten (Kretschmen); Waltzes, Op. 25 (Fuchs). **8.30**, Orchestral Concert of Light Music, conducted by Walter Caspar. Soloists: Heinrich Maurer (Songs) and Emil Franz (Xylophone). **9.30**, Pictures of Towns—Mainz. **10.20**, Time, News, Weather and Sports Notes. **10.45**, See **Munich. 12 Midnight** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

APRIL 9th **SUNDAY** *continued*

HAMBURG

Call ha (in Morse), 806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.—11.45 a.m.,** Introduction, Chorus, and Septet from Die Hochzeit (Wagner). **12.5 p.m.** (from **Hanover**), Orchestral Concert, conducted by Richard Grille. In the interval at **12.55**, Time and Weather. **2.0**, Programme for Children. **2.30** (from **Hanover**), A Sunday Celebration by Young Hitlerites. **3.15** (from **Bremen**), Wind Instrument Concert. **4.30**, Iphigenie in Aulis—Musical Drama in Three Acts (Gluck), arr. Wagner, relayed from the Municipal Theatre, Osnabrück. **5.15**, The Burghers of Calais—A Play (Rudolf Mirbt). **6.15**, Reading of Tales by Ernst Behrens. **6.35**, A Dialogue on Sport: Water Jumps. **6.45**, Weather and Sports Notes. **7.0**, Transmission for all German Stations. **8.0**, Concert by the Hamburg Philharmonic Orchestra, conducted by Richard Richter, relayed from the Musikhalle. Soloists: Erna Kroll-Lange and Bernhard Jakschtat (Songs): Symphony, Le Carnaval ou la Redoute (von Dittersdorf); Aria from the First Act of Don Giovanni (Mozart); Sextet, Dorfmusikanten (Mozart); Die Lieb' ist ein Orchester—Duet from Die Ränber bei der Hausunterhaltung—for Soprano, Bass, and Small Orchestra (Adolf Müller and Eugen Papst); Tone Poem, Karneval in Brasilien (Arthur Hartmann); Aria from der Wildschütz (Lortzing); Till Eulenspiegel's Merry Pranks (R. Strauss); First General News in the interval. **9.0**, News Bulletin. **9.10**, Topical Talk. **9.20**, Dance Music from **Berlin (Witzleben).**

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc s, 276.5 metres; 60 kW.; and **Danzig, 662 kc s, 453.2 metres.—11.0 a.m.,** Reading of Lyrics. **11.30**, Concert by the Königsberg Male Voice Choir. **12.5 p.m.** (approx.), Concert from **Hamburg. 2.0**, Talk on Chess. **2.30** (from **Danzig**), Talk for Young People: Looking for Petroleum in the Kingdom of the Incas. **3.0**, Wie die Alten sungen—Comedy for Young People (Karl Niemann). **4.30**, Concert by the Little Station Orchestra, conducted by Eugen Wilcken: March, Unter dem Siegesbanner (Blon); Potpourri, Fahrt ins Blaue (Dostal); Waltz, An rauschenden Wassern (Nael); Serenata a Toscanini (Murzilli); Madrid (de Micheli); Potpourri, Waltz Triumphs (Robrecht); Zingaresca (Monti); Addio Napoli (Murzilli); Selection from Tango um Mitternacht (Komjati). Sports Notes in the intervals. **6.0**, Talk: With the East Prussian Regiments in the Snow and Ice of the Carpathians. **6.30**, Zither Duet Recital. **7.0**, Transmission for all German Stations. **8.0**, Sports Notes. **8.15**, Sacred Concert, directed by Ludwig Leschetizki, relayed from the Neurossgärter Church, Königsberg. The Wireless Chorus and the Königsberg Opera House Orchestra. Movement from the Choral Passion for a-Cappella Five-Part Choir and two Soloists (Hugo Distler); Organ Concerto in F (Rheinberger); Movement from Historia der Auferstehung Jesu Christi and the Psalms of David for String Orchestra and Organ (Heinrich Schütz). **9.30** (from **Danzig**), Ludwig Bäte reads from his own Works. **10.0**, News and Sports Notes, followed by Concert from **Berlin (Witzleben). 12 Midnight,** Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.).—9.10 a.m. to 12.40 p.m.,** Programme of the Workers' Radio Society (V.A.R.A.). **9.10**, Talk on Horticulture. **9.40**, Legal Talk. **9.55**, Football Notes. **9.58**, Organ Recital. **10.20**, Recitations. **10.40**, Orchestral Concert. **11.25**, Film Review. **11.40**, Orchestral Concert (contd.). **12.20 p.m.,** Address. **12.40 to 5.40**, Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **12.40**, Time Signal. **12.41**, Concert by the Wireless Orchestra, conducted by Nico Treep: March, Grove House (Ord Hume); Overture, Le Roi d'Yvetot (Adam); Suite Caucasian Sketches (Ippolitov-Ivanov); Wine, Woman and Song (Joh. Strauss); Male Voice Choir: (a) Ave Maria (Witt), (b) Hymne an die Musik (Lachner), (c) Abendständchen (Siebold); Songs and Dances of the Ukraine (Leopold); Chickabiddy (Keate); O Sole mio (di Capua); Selection from La Traviata (Verdi); Male Voice Choir: Three Songs; Selection from Die Puppenfee (Bayer); La voix des Cloches (Luigini); March, In Seville (Siede). **2.40**, Running Commentary on the International Football Match, Belgium v. Holland, relayed from **Antwerp. 4.55**, Gramophone Records of Light Music. Sports Notes in the Intervals. **5.40**, V.A.R.A. Programme for Children. **6.40 to 8.40**, Programme of the Liberal Protestant Radio Society (V.P.R.O.). **6.40**, Review of Books. **7.25**, Divine Service from **Amersfoort. 8.40**, Concert by the V.A.R.A. Orchestra, conducted by Hugo de Groot. **9.40**, The Sea Calls—Play (Busch), with Music by a Sailors' Accordion Band and a Sailors' Chorus. **10.25**, Recital by H. Leydensdorff (Violin) and J. Jong (Organ). **11.5**, Gramophone Records. **11.20**, Concert by the V.A.R.A. Orchestra, conducted by Hugo de Groot. **12.5 a.m. (Monday),** Extracts from Faust—Opera (Gounod) on Gramophone Records. **12.40** (approx.), Close Down.

HORBY.—See **Steckholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**9.10 a.m.,** Religious Programme of the Christian Radio Society (N.C.R.V.). **10.10 to 5.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). **10.10**, Mass relayed from **Tilburg. 11.50**, Gramophone Records. **12.40 p.m.,** Talk. **12.55**, Concert by the K.R.O. Sextet: March, Serenade (Haydn); Waltz, Ein Liebesmärchen (Nael); Selection from Il Trovatore (Verdi); Whimsical Charms (Lander). **1.40**, Talk: William of Orange. **2.0**, Concert (contd.): March, Proficiat (de Jong); Waltz, Unter Italiens blauen Himmel (Eilenberg); Potpourri, Major and Minor (Schreiner); Torch Dance of the Brides of Kashmir, from Feramors (Rubinstein); Selection from Amina (Lincke). **2.50**, The Passion and Death of Jesus Christ—Play, with Music, by the Schola Cantorum Choir, conducted by H. Cuypers; Soloist, P. Hut. **4.55**, Programme for Invalids. **5.45 to 8.25,** N.C.R.V. Programme. **5.45**, Sacred Music on Gramophone Records. **6.30**, Divine Service from a Church in Utrecht, followed by Sacred Music on Gramophone Records. **8.25** till Close Down, K.R.O. Programme. **8.25**, Religious Address. **8.55**, Football Results. **9.0**, Concert by the Maastricht Municipal Orchestra, conducted by H. Hermans; Soloist, Mme. A. Woud (Contralto): Brandenburg Concerto No. 4 in G (Bach); Cantata No. 70 (Bach); Andante religioso from the Second Symphony in C Minor (Bruckner); Urlicht, from the Second Symphony in C Minor (Mahler); La Procession nocturne (Raband). In the interval, News and Recitations. **11.20**, Epilogue by the Choir. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**8.30 p.m.,** Radio Concert. **8.50**, News Bulletin. **9.0**, Radio Concert. **10.30 to 11.30**, Programme in English by the I.B.C. **10.30**, Concert of Light Music by the I.B.C. (Ireland), Ltd. **11.0**, I.B.C. Variety Half Hour. **11.27**, I.B.C. Goodnight Melody. **11.30** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**9.5 a.m.,** Protestant Service. **10.15**, Programme for Invalids. **11.0**, Reading (Josef Wehner). **11.25**, Talk on Music. **11.50**, Talk: The French Incursions on the Lower Rhine in 1689. **12.10**, Poetry Reading: (a) An alle (Reinacher), (b) Hans Sachsens poetische Sendung (Goethe). **12.20 p.m.,** The World on Gramophone Records: Among the Germans of the Gottschee Islands. **12.40**, Talk: Domestic Animals. **1.0**, Orchestral Concert, conducted by Eysoldt. March, Die Fünfzehner (Lülling); Overture, Der lustige Krieg (Joh. Strauss); Suite from Peer Gynt (Grieg); Selection from Madame Butterfly (Puccini); Salut d'amour (Elgar); Bell Serenade (Kockert); Hungarian Rhapsody, No. 2 (Liszt); Waltz, Wiener Bürger (Ziehrer); March Potpourri, Alte deutsche Treue (Frantzen). **2.30**, Shorthand Lesson. **2.50**, Chess Lesson. **3.25**, Reading in Düsseldorf Dialect. **3.45**, Agricultural Talk. **4.5**, Talk: German Folk Customs. **4.30**, See **Frankfurt. 5.20** (in an interval), Report of the West-German Football Championship. **6.0**, Talk: Towns of Rhineland and Westphalia—Hagen. **6.35**, The Egg-Sorting Machine—Radio Report on Gramophone Records. **7.0**, Transmission for all German Stations, relayed from **Frankfurt. 8.0**, Sports Report. **8.15**, Don Giovanni—Opera in Two Acts (Mozart). **10.25**, News and Sports Notes. **10.45**, See **Munich. 12 Midnight** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **DRESDEN, 941 kc/s, 319 metres.—11. a.m.,** Talk: A Painter's Travels in the Sudan. **11.30**, Heinz Stegnweit reads from his own Works. **12 Noon,** Concert by the Leipzig Symphony Orchestra, conducted by Hellmuth Kellermann. **2.0 p.m.,** Weather and Time. **2.5**, Review of the Week's Programme. **2.25**, Agricultural Notes. **2.35**, Concert by a Male Voice Choir. **3.10**, Guitar Recital. **3.45**, De Hanuet trei—a Folk Play from the Erzgebirge (Max Rothe). **5.0**, Concert by the Emdé Orchestra. **6.30**, Topical Talk. **7.0**, Transmission for all German Stations relayed from **Frankfurt. 8.0**, Die Königskinder—Opera (Humperdinck) relayed from the Freidrichtheater, Dessau. In the intervals from **9.0 to 9.20**, Topical Talk, and from **10.0 to 10.15**, News. **11.0**, News. **11.0** (approx.), Concert by Hans Dransmann and his Orchestra. **1.0 a.m. (Monday),** (also relayed by **Zeesen** on **31.38 metres**), Concert by the Dresden Philharmonic Orchestra, conducted by Hermann Kutzschbach. Soloists: Martha Fuchs (Contralto) and Paul Schöffler (Baritone). Overture, Euryanthe (Weber); Two Baritone Solos from Don Giovanni (Mozart); Contralto Solos from The Taming of the Shrew (Goetz); Two Baritone Solos from Czar and Carpenter (Lortzing); Overture, The Merry Wives of Windsor (Nicolai); Prelude to Friedemann Bach (Graener); Extracts from Ariadne auf Naxos (R. Strauss); Contralto Solo from Ariadne auf Naxos (R. Strauss); Prelude to Hansel and Gretel (Humperdinck); Baritone Solo from The Mastersingers (Wagner). **3.0 a.m.** (approx.), Close Down.

LINZ.—See **Vienna.**

MADRID

ARANJUEZ, EAQ, 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** Concert of Popular Music. **11.45**, Humorous Talk. **12 Midnight,** Concert (contd.). **12.35 a.m. (Monday),** Talk. **12.40**, Light Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres, 2 kW.—**9.0 to 10.0 a.m.,** Topical Review. **12.30 p.m.,** Concert by the Madrid Municipal Band, conducted by Villa. **3.0**, Chimes, Time Signal, Theatre Notes, and Concert by the Artys Orchestra. **5.0 to 8.0**, Interval. **8.0**, Chimes, Radio Journal, and Dance Music relayed from the Ritz Hotel. **9.30 to 10.30**, Interval. **10.30**, Chimes and Time Signal. **10.35** (approx.), Harpsichord Solos by Macario Kastner. Interlude by Ramon Gomez de la Serna, followed by Song Recital by Luisa Nere (Soprano) and Franco Mar (Baritone). **1.0 a.m. (Monday),** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**12.5 p.m.,** Military Band Concert: March (Zita); Waltz (Oberthor); Overture, William Tell (Rossini); Selection from Mephistopheles (Boito); Operetta Potpourri (Ambroz); Polka (Tvrdy); Medley of Moravian Folk Songs (Jurecek); March (Lukes). **1.30**, See **Brno. 2.0 to 2.15**, See **Prague. 4.0**, Concert by the Station Orchestra, conducted by J. Plichta: Overture, Amid Nature, Op. 91 (Dvorak); Idyll, Op. 39 (Fibich); Pianoforte Concerto in A Minor, Op. 16 (Grieg); Overture, The Kiss (Smetana); Selection from The Bartered Bride (Smetana). **5.30 to 6.45**, See **Prague. 7.0**, Cabaret Programme by the Tahiti Vocal Union and the Station Orchestra, conducted by J. Plichta. **8.0**, See **Bratislava. 10.15**, See **Prague. 11.30** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1.256 kc/s, 239 metres.—10.0 a.m.,** Protestant Service. **10.45**, Chimes from Our Lady's Church. **10.55**, Padmarum—a Peasant Play (Alois Johannes Lippl). **11.30**, See **Leipzig. 12 Noon,** Concert by the Station Orchestra, conducted by Karl List. Soloist: Franz Ortner (Double Bass). **1.5 p.m.,** Time, Weather and Programme Announcements. **1.15**, Agricultural Talk. **1.35**, Gramophone Concert of German Classical Music. **2.30**, Talk: Dr. H. von Gottschall. **3.15**, Talk on the Berlin Women's Exhibition. **3.35**, Concert of Bavarian Folk Music by the Vilsbiburg Musical Society. **4.25** (from **Nürnberg**), Talk. **4.45**, Orchestral Concert, conducted by Erich Kloss. **6.0**, Weather Forecast and Sports Notes. **6.10**, A Palm Sunday Meditation. **6.35**, The St. Matthew Passion (Bach) for Soloists, Double Choir, Double Orchestra and Organ, relayed from the Odeon. **10.20**, Time, Weather, News and Sports Notes. **10.45**, Serenade, conducted by Erich Kloss. **12 Midnight** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.—10.15 a.m.,** Road Report. **10.55**, Chimes. **11.0**, Divine Service, relayed from the Cathedral Chapel. **1.0 p.m.,** Orchestral Concert, relayed from the Commercial Society's Hall. Conductor: Gustav Lange. Second Suite from L'Arlésienne (Bizet); Symphonic Poem, La Jeunesse d'Hercule (Saint-Saëns); German Dance (v. Dittersdorf); German Dance (Mozart); Potpourri of Swedish Melodies (Lange); Coronation March from The Prophet (Meyerbeer). **5.0**, Concert by M. Aksel Böhler (Baritone), Oscar Hansen (Harp), and Eivind Bull Hansen (Violin). **6.0**, Agricultural Report. **6.30**, Talk on Skiing. **7.0**, Parliamentary Notes. **7.15**, Weather and News. **7.30**, Chamber Music: Quartet in G for Strings, No. 19 (Haydn); Popular Norwegian Melodies (arr. Brustad);

Melody (Rubinstein); Melody (Brustad); Serenade (Haydn). **8.0,** Time Signal. **8.1,** The Flight—Play in Three Acts (Stefan Zweig). **9.40,** Weather and News. **10.0,** Topical Talk. **10.10,** Symphony No. 5 (Tchaikovsky) by the Station Orchestra, conducted by Hugo Kramm. **11.0** (approx.), Close Down.

OSTERSUND. See **Stockholm.**

PALERMO

558 kc s, 537.6 metres; 3 kW.—**10.25 a.m.,** Bible Reading. **10.40,** Sacred Music. **11.5,** Agricultural Talk. **12.45 p.m.,** Giornale Radio. **1.0 to 2.0,** Concert by the Sunny Band Quartet. In an interval at **1.30,** Time, Announcements, and Weather Forecast. **5.30 to 6.30,** Popular Music on Gramophone Records. **8.0,** Dopolavoro Notes and Giornale Radio. **8.20,** Sports Notes. **8.30,** Time, Announcements, and Light Music on Gramophone Records. **8.45,** Symphony Concert, conducted by A. La Rosa Parodi; Soloist: Achille Longo (Pianoforte): Third Suite for Strings, Antiche Arie and Danza (Respighi); Canto di zolfara (Gibilaro); Concerto for Pianoforte and Orchestra (Achille Longo); Pianoforte Solos: Two Sonatas in the Style of Scarlatti (Achille Longo); First Symphony in C (Beethoven). In the interval, Talk on Beethoven's Music. After the Concert, Variety Songs. **10.55,** News.

PARIS

EIFFEL TOWER (FLE), 207.5 kc s, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**1.0 p.m.,** News Bulletin. **1.15,** Weather Report. **1.30,** Concert by Jean Dos and his Orchestra. **2.30 to 6.45,** Interval. **6.45,** Le Journal Parlé. **7.15,** Programme for Children. **8.20,** Weather Report. **8.30,** Gramophone Concert: Part I—Suite Algérienne (Saint-Saëns); Extracts from the Peer Gynt Suite (Grieg): Ceremonial March (Grieg); Part II—Dance Music. **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc s, 328.2 metres; 60 kW.—**9.45 a.m.,** Bible Reading. **10.0,** News. **10.5,** Sponsored Concerts. **11.40,** Light Music on Gramophone Records. **12.15 p.m.,** Music from Sound Films. **12.45,** Sponsored Talk. **12.50,** Half-an-Hour of Fantasy by Paul Weil. **1.20,** Interval. **1.30,** Sponsored Programme. **2.0 to 6.45,** Interval. **6.45,** Journal Parlé. **7.0,** Sports Notes. **7.15,** Light Music on Gramophone Records. **7.30,** Catholic Programme. **8.0,** Interval. **8.15,** Light Music on Gramophone Records. **8.45,** Interval. **9.0,** Dario le musicien—Radio Play (Barbarin). **9.30,** Orchestral Concert, conducted by M. Aubanel: Overture, Si j'étais toi (Adam); Contes de la veillée (Godard); Ballet égyptien (Luigini); The Skaters' Waltz (Waldteufel); Selection from Monsieur Beaucaire (Messager); Orchestral Suite, La Fête chez Thérèse (Hahn); Scherzo Gaiement (Staub); Estudiantina (Turina). **10.30,** News.

PARIS

Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**7.45 a.m.,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **8.30,** Physical Culture. **11.30 to 12 Noon,** Programme in English by the I.B.C.: Gramophone Concert, Mr. T. St. A. Ronald announcing. **12 Noon,** Religious Address by the Reverend Father Lhande. **12.20 p.m.,** Sacred Music: Prelude in E Flat (Saint-Saëns); First Movement from the Fourth Symphony (Widor); Finale from the Second Symphony (Widor). **12.30,** Bilhoquet. **12.45,** Press Review, News and Weather. **1.0,** Variety Music on Gramophone Records. **1.30,** Light Music on Gramophone Records. **2.0,** Popular Music on Gramophone Records. **3.0 to 3.30,** Programme in English by the I.B.C.: Orchestral Concert: March, Stars and Stripes (Sousa); Selection from The Gipsy Princess (Kálmán); Waltz: Live, Love and Laugh, from Congress Dances (Heymann); By the Swanee River (Myddleton); Selection from Floradora. **3.30,** Gramophone Concert: Overture, Fra Diavolo (Auber); Overture and Ballet Music from Ramuntcho (Pierné); Jewel Song from Faust (Gounod); Rhapsody, España (Chabrier). **4.0 to 5.0,** Programme in English by the I.B.C. Tea-Time Variety Hour, Mr. S. H. C. Williams announcing. **5.0,** Sixth Lenten Sermon by the Reverend Father Pinard de la Boullaye, relayed from **Notre Dame**: The Personality of Jesus Christ—Charity Incarnate. **6.30,** Variety Concert. **7.0,** Popular Concert. **8.0,** Radio Paris Circus. **8.30,** News, Sports Notes and Weather. **8.45,** Radio Paris Music Hall. In the interval at **9.15,** Press Review and News.

PORSGRUNO. See **Oslo.**

PRAGUE

614 kc s, 488.6 metres; 120 kW.—**12 Noon,** Chimes. **12.5 p.m.,** See **Moravská-Ostrava. 1.30,** See **Brno. 2.0,** Agricultural Talk. **2.15,** Social Report. **2.25 to 3.30,** Interval. **3.30,** Dialogue relayed from **Mlada Boleslav. 4.0,** See **Moravská-Ostrava. 5.20,** Talk. **5.45,** Variety Music on Gramophone Records. **6.0,** German Transmission: Concert by a German Choir and the Station Orchestra, conducted by Dr. Nowak. Soloist: Trante Rohen (Songs). **7.0,** Chimes. **7.1,** See **Moravská-Ostrava. 8.0,** See **Bratislava.** In the interval at **9.0,** Time Signal. **10.0,** Time Signal. **10.15,** News Bulletin. **10.35,** Jazz on Two Pianofortes and Songs. **11.20** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 393 kc/s, 760 metres.**—**9.55 a.m.,** (from **Geneva**), Chimes. **10.0** (from **Geneva**), Protestant Address relayed from St. Peter's Cathedral. **11.0** (from **Lausanne**), Concert by the Radio Quintet. **11.30** (from **Lausanne**), Country Music. **12 Noon** (from **Lausanne**), Literary Talk. **12.30 p.m.,** News and Weather. **12.45 to 2.0** (from **Lausanne**), Variety Music on Gramophone Records. **3.30** (from **Lausanne**), Requiem (Verdi) on Gramophone Records. **5.0 to 6.30,** Interval. **6.30,** (from **Lausanne**), Poetry Reading. **7.0** (from **Geneva**), Organ Recital by W. Montillet. **7.40** (from **Geneva**), Sports Notes and News. **8.0** (from **Geneva**), Concert. **9.0,** Concert by the Radio Suisse Romande Orchestra, conducted by Robert Echenard. **10.0,** News and Weather. **10.15** (approx.), Close Down.

RJUKAN. See **Oslo.**

ROME

Call tRO, 680 kc s, 441 metres; 50 kW. Relayed by **Naples, 941 kc s, 319 metres,** and **2RO, 11,810 kc/s, 25.4 metres.**—**10.10 a.m.,** News, Sports Notes, and Amusement Guide. **10.30,** Agricultural Report. **10.45,** Bible Reading. **11.0 to 12 Noon,** See **Turin. 12.30 p.m.,** Orchestral Concert. In the interval at **1.0,** Time and Announcements. **1.30 to 2.30,** Orchestral Concert. **3.45** (**Naples**), Programme for Children, Weather and Sports Notes. **4.0,** Football Report. **4.15 to 6.15,** Orchestral Concert. Sports Notes in the interval. **7.30,** Sports Notes, Football Results, Dopolavoro, and Miscellaneous Notes. **8.0,** Time and Announcements. **8.30,** Sports Report. **9.0,** See **Turin.** Readings in the interval. News after the Programme.

SALZBURG. See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAO** on **19.56 metres.**—**8.0 p.m. to 1.0 a.m. (Monday), New York** Relay. **8.0,** Clyde Doerr and his Saxophone Octet. **8.15,** International Radio Forum. **8.30,** Joe Green and his Marimba Band. **9.0,** Wayne King and his Orchestra. **9.30,** Hour of Worship. **1.0,** Dr. Frank Sill Rogers (Organist). **1.15 to 3.30, New York** Relay. **4.15,** Wheatena Ville—Sketch. **4.30,** Horse Sense Philosophy. **4.45,** Smith Brothers Programme. **5.0,** Chase and Sanborn Hour. **6.0,** General Electric Sunday Circle Concerts. **8.30,** American Album of Familiar Music, relayed from **New York,** followed by Programme Resumé.

SOTTENS.—See **Radio-Suisse Romande.**

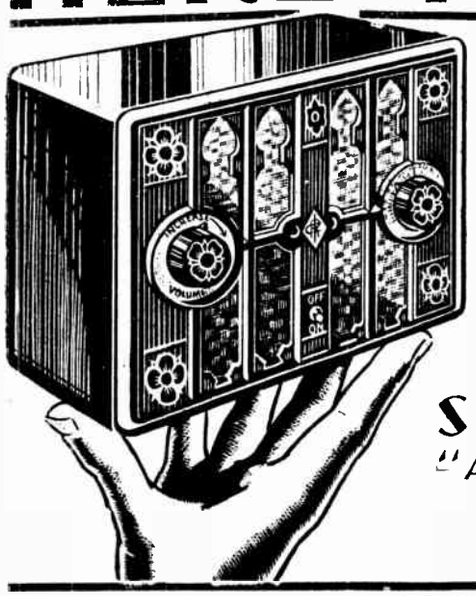
SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**10.0 a.m.,** (from **Basle**), Protestant Service, relayed from St. Theodore's Church. **10.45** (from **Basle**), Concert by the Salvation Army Band. **11.30** (from **Basle**), Reading. **12.10 p.m.** (From **Zürich**), Palm Sunday Concert by the Radio Orchestra. **12.28,** Time and Weather. **12.30,** News. **12.40** (from **Zürich**), Palm Sunday Concert (contd.). **1.30** (from **Basle**), Talk: The Feeding of Animals and Vitamins. **2.0,** Concert by the Bürgi Brothers Orchestra. **2.30 to 3.30,** Interval. **3.30** (from **Berne**), Missa Solemnis, Op. 123 (Beethoven), on Gramophone Records. **5.10 to 6.30,** Interval. **6.30** (from **Berne**), Talk: The Passion in Music. **7.0,** Time, Weather and Sports Notes. **7.3** (from **Berne**), Talk: Mountain Flowers in Spring. **7.20** (from **Zürich**), Elijah—Oratorio in Two Parts (Mendelssohn), relayed from the Oerlikon Church. The Oerlikon Male Voice Choir and the Augmented Radio Orchestra. Soloists: Gret Lenen (Soprano), Dora Maag (Contralto), Albert Wettstein (Tenor) and Arthur Köst (Bass). **9.30,** Weather and News. **9.40** (from **Zürich**), Concert by the Radio Orchestra. **10.15,** Sports Notes. **10.25** (approx.), Close Down.

STOCKHOLM

689 kc s, 435 metres, 55 kW. Relayed by **Boden, 244 kc s, 1,229.5 metres; Goteborg, 932 kc s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc s, 1,354.4 metres; Ostersund, 389 kc s, 770 metres;** and **Sundsvall, 554 kc s, 542 metres.**—**9.30 a.m.,** Two Talks, relayed from **Malmo, 1,301 kc/s, 231 metres. 10.0,** Talk. **10.30,** Talk for Workers. **11.0,** Divine Service, relayed from **Malmo. 12.45 p.m.,** Weather and Ice Report. **2.0,** Popular Music on Gramophone Records. **2.40,** Talk in Norwegian. **3.0,** Choral Concert, conducted by Ragnar Creutzer, relayed from **Karlstad, 1,382 kc s, 217 metres.** Soloist: Folke Andersson. **4.0,** Orchestral

HERE IT IS



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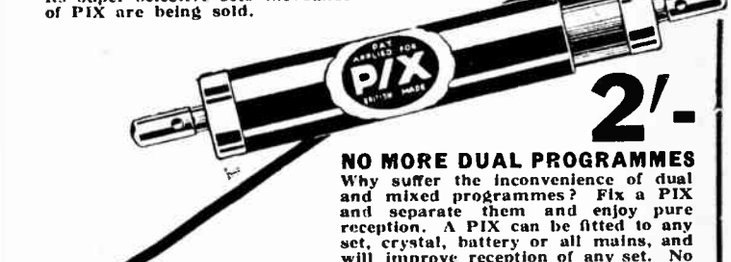

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APRIL 9th SUNDAY *continued*

Concert and Speeches for the Opening of the Academy of Music at Arvika. **5.30,** Weather. **5.35,** Talk: Swedish Pioneers in Africa. **6.0,** Evensong, relayed from **Falun, 977 kc/s, 307 metres.** **7.15,** Weather and News. **7.30,** Gumman, som aldrig fann tiden lang—One-Act Play (Peter Egge). **8.35,** Second and Third Acts of Parsifal—Opera (Wagner), relayed from the Royal Theatre. In the interval at **9.35** (approx.), Weather and News. **11.10** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**9.30 p.m.,** Orchestral Concert, conducted by M. de Villars. **10.45,** Protestant Service in German. **11.30,** Catholic Service. **12 Noon,** Chopin Concert on Gramophone Records. **12.45 p.m.,** News. **1.0,** Variety Concert on Gramophone Records. **2.0,** Agricultural Talk. **2.15,** Dance Music on Gramophone Records. **3.15 to 4.0,** Interval. **4.0,** Light Music on Gramophone Records. **5.0,** Dance Music, conducted by Roskam. **6.0,** Medical Talk in German. **6.15,** Sports Talk. **6.30,** Orchestral Concert, conducted by M. de Villers: Marche lorraine (Ganne); Waltz, Pomona (Waldteufel); Overture to a Hungarian Comedy (Keler-Bela); Selection from I Pagliacci (Leoncavallo); Two Hungarian Dances (Brahms); Ballet Music from Sylvia (Delibes). **7.30,** Time, News and Sports Notes. **7.45,** Classical Music on Gramophone Records. **8.15,** Press Review in German, Lottery Results and Announcements. **8.30,** Alsatian Evening. In the interval at **9.30** (approx.), News in French. **10.30,** Dance Music from the Savoy Dance Hall. **12 Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**2.0,** Gramophone Concert of Light Music. **3.10,** Pianoforte Recital by Karl Keidel: Sonata quasi una Fantasia in C Sharp Minor (Beethoven); Perpetuum mobile (Weber); La Campanella (Liszt). **3.30,** See **Frankfurt.** **4.30** (from **Freiburg**), Song Recital by Berta Gunderloh (Soprano). **5.0** (from **Karlsruhe**), Concert by the Karlsruhe Chamber Orchestra, conducted by Erwin Kosakowski. Soloists: Heinrich Reith (Violin) and Otto Kirchberger (Flute); Flute Concerto in G (Quantz); Violin Concerto in A (Mozart); Symphony in E Flat (Haydn). **6.0,** Sports Notes. **6.10,** Arnolt Bronnen reads from his own Works. **6.35** (from **Freiburg**), Recital of Passion Melodies by a Choir. **7.0,** Transmission for all German Stations, relayed from **Frankfurt.** **8.0,** Radio Report of the Swearing-in of Nazi Recruits at Ludwigshurg. **8.35,** Talk on the following Transmission. **9.0,** Third Act of Parsifal—Opera (Wagner) from the Württemberg Theatre. **10.15,** Time, News, Weather, Programme Announcements and Sports Notes. **10.45,** See **Munich.** **12 Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**12.15 p.m.,** News Bulletin. **12.30,** Catholic Service. **1.0,** Amusement Guide. **1.5,** Songs. **1.15,** Orchestral Music. **1.30,** Songs from Operettas. **1.45,** Protestant Service. **2.15,** News Bulletin. **2.20,** Viennese Music. **2.45,** Agricultural Report. **3.0,** Accordion Solos. **3.15,** News Bulletin. **3.20,** Songs from Sound Films. **3.30,** Orchestral Pieces. **4.15,** Racing Results. **4.20,** Opéra Comique Songs. **4.30,** Dance Music. **5.0,** Songs from Operettas. **5.15,** News and Racing Results. **5.20,** Songs from Opera. **5.30,** 'Cello Solos: Romance sans paroles (Fauré); Spring Song (Mendelssohn); Rondo (Boccherini): Minuet (Mozart). **5.45,** Ballet Suite for Orchestra, El amor brujo (Falla). **6.0,** News Bulletin. **6.15,** Songs. **6.30 to 7.0,** Programme in English by the I.B.C. **6.30,** Announcer: W. Brown-Constable. Concert of Popular Music: Selection from Congress Dances; My Heart's to let; When you've fallen in love; Freddie the Freshman; Can't do without Love; I'm playing with Fire; Someone to care for; Round about Sundown; Puss, Puss, Puss. **7.0,** Military Band Concert. **7.15,** News, Racing Results and Market Prices. **7.30,** Songs from Sound Films. **7.45,** Argentine Music. **8.0,** An Bal Musette. **8.15,** Songs from Operettas. **8.30,** Opéra Comique Songs. **8.45,** Hunting Horn Choruses. **9.0,** Extracts from Congress Dances (Reymann). **9.20,** Orchestral Concert. **10.0,** Songs and Humorous Scenes. **10.15,** North African News. **10.30 till 12 Midnight,** Programme in English by the I.B.C. **10.30,** Concert of Light Music: Orchestra: Air from A Waltz Dream (O. Straus); Songs: (a) The Gay Highway (Drummond), (b) The Drum Major (Newton); Orchestra: (a) Selection from Congress Dances (Reymann), (b) Old Vienna Moon (Lebert); Duet: Homing (del Riego); Duet: O Lovely Night (Ronald); Orchestra: Waltz, The Blue Danube (Joh. Strauss). **11.0,** Concert of Orchestral and Vocal Music by the I.B.C. (Ireland), Ltd. Orchestra: Waltz, Tales from the Vienna Woods (Joh. Strauss); Song: Mother Machree (Young); Chorus: The Soldiers' Chorus from Faust (Gounod); Orchestra: Hungarian Dances (Brahms); The Anvil Chorus from Il Trovatore (Verdi); Song, Danny Boy (Weatherley); Orchestra: Selection from Waltzes from Vienna (Joh. Strauss). **11.30,** Variety Music and Songs: Poupée valsante; Dream a little Dream of me; One little Raindrop; Stephanie; Stándchen; I'll always be true; Life's Desire; Démande et réponse. **11.57,** I.B.C. Close-night Melody. **12 Midnight,** News and Weather. **12.5 a.m. (Monday),** Accordion Solos. **12.15,** Vocal Tangos. **12.30** (approx.), Close Down.

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**9.40 a.m.,** Giornale Radio. **9.55 to 10.40,** Interval. **10.40,** Agricultural Talk. **11.0,** Mass from the Church of the Annunciation, Florence. **12 Noon to 2.15 p.m.,** Bible Reading. **12.30,** Orchestral Concert. In the interval at **1.0,** Time and Announcements. **1.30 to 2.30,** Orchestral Concert, conducted by Ugo Tansini. **3.30,** Variety Music on Gramophone Records. **4.0,** Orchestral Concert. **6.0 to 6.15,** Football Report. **7.0,** Time and Announcements. **7.10,** Popular Music on Gramophone Records. **8.0,** Announcements, Sports Notes, and Gramophone Records (contd.). **9.0,** Mignon—Opera (Thomas), relayed from the Scala, **Milan.** In the intervals, Talk, Theatre Notes, and Giornale Radio.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—**8.35 a.m.,** Song Recital by Lili Ulanovsky (Soprano). **11.0,** Programme from the Aspern Aerodrome. **11.35,** Concert by the Vienna Symphony Orchestra, conducted by Hugo Gottesmann. Soloists: Jaro Schmied and Josef Zimbler (Violins). Symphony in D (Mozart); Concerto in A Minor for Two Violins (Vivaldi-Nachez); The Nutcracker Suite (Tchaikovsky); Short Prelude, Op. 30, for Strings and Trumpet (Rathaus). **12.45 to 2.0 p.m.,** Orchestral Concert. **3.0,** Time and Programme Announcements. **3.5,** Book Review. **3.30,** Talk on Epirus. **4.0,** Orchestral Concert. **5.20,** Second Half of the International Football Match, Austria v. Czechoslovakia, relayed from the Hohe Warte Sports Ground. **6.15,** Alfred Uhl Concert by Willy Gross (Violin), Richard Goldner (Viola), and Karl Dobranz (Guitar). Trio in A Minor; Kleine Suite. **7.0,** Regina Ullmann reads from her own Works, with Introductory Talk by Erwin Rieger. **7.30,** Time, Programme Announcements and Sports Notes. **7.40,** Song Recital by Emanuel List. **8.20,** The Thuringian Play of the Ten Virgins—re-arranged by Franz Theodor Csokor, with music. **9.15,** News. **9.30,** Orchestral Concert.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Weather Forecast. **12.15,** Concert by the Warsaw Philharmonic Orchestra, conducted by F. Mahler, relayed from the Philharmonic. Soloist: E. Zetzlin (Pianoforte). Ritmica ostinata (Vogel); Pianoforte Concerto in B Flat Minor (Tchaikovsky); The New World Symphony, No. 5 (Dvorak). In the interval, Announcements. **2.0,** Agricultural Talk. **2.20,** Concert of Sacred Music by the Warsaw Municipal Choir, conducted by W. Laski: Last Chorus from St. John's Passion (Bach); Song from the Requiem (Mozart); Two Songs (Moniuszko). **2.45,** Educational Talk. **3.5,** Instrumental Music. **4.0,** Programme for Children. **4.25,** Light Music on Gramophone Records. **4.45,** Scientific Talk, relayed from **Lwow (788 kc/s, 381 metres).** **5.0,** Pianoforte Recital by Mme. Jonas: Sonata in D Minor, Op. 31, No. 2 (Beethoven); Fantasia in D Minor (Mozart); Four Pieces (Schumann): (a) Des Abends, (b) Aufschwung, (c) Warum, (d) Grillen; Impromptu in E Flat (Schubert). **5.30,** Announcements. **5.35,** Song Recital by Mme. Czechowiez (Contralto). **5.55,** Programme Announcements. **6.0,** Popular Concert, relayed from the Café Gastronomia. In the interval: News. **7.45,** Miscellaneous Items. **7.10,** Reading relayed from **Wilno (353 kc/s, 563 metres).** **8.0,** Concert of Italian Music by the Station Orchestra, conducted by J. Oziminski. Soloist: Umberto Macnez (Tenor). March from Aida (Verdi); Selection from Tosca (Puccini); Ballet Music from La Gioconda (Ponchielli); Tenor Solos: Arias from: (a) The Force of Destiny (Verdi), (b) La Gioconda (Ponchielli), (c) Tosca (Puccini); Festa di Maggio (Culotta); Pastorale (Vittadini); Pleni Sunnio d'aprile (Montanaro); Gipsy Serenade (Limonta); Tenor Solos: (a) Song from Arlesiana (Cilea), (b) O primavera (Trindelli), (c) Lolita (Buzzi-Peccia), (d) Tarantella (Rossini); Selection from The Sunken Bell (Respighi); Fantasia tripolina (Billi). **9.50,** Sports Notes. **10.0,** 'Cello Recital by Cas Wilkomirski. **10.55,** Aviation Weather Report and Police Notes. **11.0,** Popular Music on Gramophone Records.

ZURICH.—See **Schweizerischer Landessender.**

MONDAY

APRIL THE TENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	"The Saturday Game," a revue by Ernest Longstaffe. Chamber music.
LONDON REGIONAL	The Yorkshire Mummers' concert party.
MIDLAND REGIONAL	Modern French music, pianoforte recital.
NORTH REGIONAL	Orchestral and choral concert.
WEST REGIONAL	Speeches at the Swansea Choral and Orchestral Society's dinner.
SCOTTISH REGIONAL	Two plays from the Final of the Scottish Community Drama Festival.
BELFAST	"Hansel and Gretel," a fairy opera, by Humperdinck.

ABROAD

BERLIN (Witzleben)	9.10 p.m. Beethoven's Symphony No. 3 in E flat "Eroica" from the Philharmonie.
BRATISLAVA	9 p.m. Concert of sacred music.
COPENHAGEN	8 p.m. Operetta concert by the Radio Orchestra.
HUIZEN	8.40 p.m. Organ recital by H. Loohuys, from Amsterdam.
KONIGSWUSTERHAUSEN	7 p.m. "Frederic's Legacy," historical radio sequence by W. Grünwald.
RADIO-PARIS	8 p.m. Operetta: "The Dance of the Dragonflies" by Lehar.
ROME	5.30 p.m. Concerto for Four Pianofortes (Bach), from the Philharmonic Academy, conducted by Alfredo Casella.
STRASBOURG	8.30 p.m. Concert of sacred music, from Metz.
TURIN	9 p.m. Violin recital by Bronislav Hubermann.
WARSAW	8.20 p.m. Polish vocal and instrumental music.

ALGIERS

824 kc/s, 364 metres; 13 kW.—**8.10 p.m.,** Shipping Notes. **8.15,** Weather Forecast and Agricultural Notes. **8.20,** Extracts from La Bohème (Puccini). **8.55,** News. **9.0,** Time Signal. **9.2,** Book Review. **9.15,** The Unfinished Symphony (Schubert). **9.40,** Talk on Algiers. **9.55,** News. **10.0,** Concert of Light Music. **10.30,** News. **10.35,** Songs from Operettas. **10.55,** News. **11.0** (approx.), Close Down.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **CORK, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Popular Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** Talk for Farmers: How Plants are Improved. **8.0,** Concert of Irish Music by the Station String Orchestra. **8.30,** Piccolo Solos of Irish Music. **8.45,** The Station Orchestra. **9.5,** Traditional Fiddle Music by May Cavanagh. **9.15,** Baritone Solos by Marcus Ruddle. **9.30,** The Station Orchestra. **9.40,** Soprano Solos by Jean Nolan. **10.0** Talk by Carl Hardebeck. **10.30,** Time Signal, News, Weather Report and Close Down.

BARCELONA

RADIO-BARCELONA; Call EAJ1; 360 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert: Selection from Le roi d'Ys (Lalo); Clair de lune, from Werther (Massenet); Selection from Samson and Delilah (Saint-Saëns); Prelude in C Minor (Rachmaninov). **7.30,** Quintet Concert, relayed from the Café de la Rambla. **8.30,** Sports Notes, Exchange, and Talk in Catalan. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes, Weather, Exchange, and Market Prices. **10.5,** Humorous Review of the Week. **10.15,** Concert of Sardanas. **11.0.** Concert by the Station Orchestra: Polonaise in B Flat (Schubert); Intermezzo (Delmas); Oriental Dance (Bortkiewicz); Rigaudan from Dardanus (Rameau). **11.30,** Catalan Radio Gazette. **12 Midnight,** News Bulletin, followed by Concert of Chamber Music. **1.0 a.m. (Tuesday)** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**5.30 to 6.30 p.m.,** Variety Music on Gramophone Records. **8.0,** Agricultural Notes, Tourist Report, and Dopolavoro Announcements. **8.20,** Giornale Radio and Weather. **8.30,** Time and Announcements. **8.35,** Concert. Soloists: Lino d'Angelo (Baritone) and Bianca Punzi (Soprano). In the intervals, Talk: The Lapps and their Superstitions, and Announcements. **10.30,** Popular Music on Gramophone Records. **10.55,** News.

BASLE. See **Schweizerischer Landessender.**

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW. **12.5 p.m.,** Lotte Lehmann Song Recital on Gramophone Records. **12.55,** Nauen Time Signal. **1.45,** News Bulletin. **2.0,** Gramophone Concert, relayed from **Berlin (Witzleben). 3.0,** Talk on Glovemaking. **3.30,** Weather and Exchange. **3.45,** Review of Books. **4.0,** Talk: The Schools on the Frontier. **4.30,** See **Berlin (Witzleben). 5.10,** Talk, on Character. **5.30,** Chamber Music. Trio in B Flat, for Violin, Viola and 'Cello (Schubert); Divertimento for Viola d'amore, Viola and 'Cello (Haydn). **6.0,** Poetry Reading. **6.5, Talk:** German Colonists in America. **6.30,** Loewe Ballad Recital by Paul Seebach (Bass-Baritone): Der heilige Franziskus; Ich denke dein; Der Feind; Der Edelfalk; Die Lauer; Odin's Meeresritt; Edward. **6.55,** Weather and News. **7.0,** Transmission for all German Stations. Friedrichs Vermächtnis (Frederick's Legacy) Historical Radio Sequence (Willy Grünwald). **8.0,** See **Breslau. 8.50,** Reading of Sonnets (Joachim von der Goltz). **9.10,** See **Berlin (Witzleben). 10.0,** Weather, News and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Concert from **Frankfurt. 12 Midnight** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.30 p.m.,** Concert of Light Music from the Café Corso. **5.30,** Talk by Bernhard Rausch. **5.50,** Talk for Young People. **6.10,** Musical Handwriting a Dialogue between the Inventor Rudolf Pfenninger and Max Lenz. **6.30,** Hermann E. Busse reads from his own Works. **6.50,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** Concert of Light Music by Alois Pachernegg and his Orchestra. **9.10,** Symphony No. 3 in E Flat, Op. 55 the Eroica (Beethoven), by the Berlin Philharmonie Orchestra, conducted by Dr. Wilhelm Furtwängler, relayed from the Philharmonie. **10.0,** Weather and News, followed by Concert of Light Music. **12 Midnight,** Close Down.

BERNE. See **Schweizerischer Landessender.**

BEROMUNSTER — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by F. Dyk. Celtic Overture (Foulds); Suite, Aus Heuen Lander (Moszkovsky); Seven Waltzes (Dvořák). **5.10,** See **Prague. 5.50,** Violin and Pianoforte Recital by J. Actardieff and S. Nemeth. Sonata No. 2 in D Minor, Op. 121 (Schumann); Song without Words (Marsik); Sonata in G, Op. 13 (Grieg). **6.55,** Talk on Housing. **7.0,** See **Prague. 7.10,** Talk for Women. **7.25,** See **Brno. 9.0,** Concert of Sacred Music by the Station Orchestra, conducted by A. Albrecht, a Mixed Choir and Soloists. Requiem in E Minor (Haydn); Ave verum (Mozart); Laudate Dominum (Mozart); Panis angelicus (Franck); Agnus Dei (Franck); Stabat Mater (Szymanowsky). **10.0,** See **Prague. 10.15** (approx.), Close Down.

BREMEN. See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by **Gleiwitz, 1,184 kc/s, 253 metres.—1.10 p.m.,** Gramophone Concert. Overture, The Secret Marriage (Cimarosa); Funeral March from The Egyptian Helen (R. Strauss); Zigeunerlieder; Overture, Oberon (Weber); Fourth Movement from the Caucasian Suite (Ippolitov); Air from Ivan the Terrible (Rimsky-Korsakov). **1.45,** Time, Weather, News, Exchange and Shipping Notes. **2.5,** Gramophone Concert. Sonata in F for Flute and Pianoforte (Locillet); Suite in A (Vivaldi); Minuet from the Quartet in D Minor (Mozart); Songs: (a) Wohin? Schubert). (b) Verborgenheit (Wolf); Le cygne (Saint-Saëns); Sambre et Meuse. **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Book Review. **4.0,** Talk. **4.20,** Concert by the Radio Orchestra, conducted by Franz Marszalek. Soloist: Hellmut Hallendorf (Tenor): Overture, Tancredi (Rossini); Waltz, Abendblätter (Offenbach-Senger); Selection from Das Dorf ohne Glocke (Künneke); Erzählung eines Abenteuers (Clemus); Prelude to Acts II, III and IV of Carmen (Bizet). **5.30,** Agricultural Prices. **5.35,** Scientific Talk. **6.0,** Programme to be announced. **6.30,** Talk on Bismarck. **7.0,** Programme for all German Stations, relayed from **Berlin (Königs-Wusterhausen). 8.0,** Choral Concert, conducted by Fritz Lubrich. Songs (Brahms): (a) Letztes Glück, (b) Nachtwache, (c) Waldesnacht, (d) In stiller Nacht, (d) Ich fahr' dahin, (e) Bei nächtlicher Weil; Songs (Lubrich): (a) Im Himmelreich ein Haus steht, (b) Frühherbst; Songs (Mendelssohn): (a) Die Nachtigall, (b) O Täler weit. **8.50,** Announcements. **9.10,** Concert from **Berlin (Witzleben). 10.0,** Time, Weather, News, Sports Notes, Market Prices and Programme Announcements. **10.25,** French Lesson. **10.50,** Talk: The Experiences of a Policeman on Point Duty. **11.5,** Talk. **11.20** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**6.25 p.m.,** German Transmission: News, Elementary French Lesson and Talk. **7.0,** See **Prague. 7.25,** Concert by the Station Schrammel Quartet. **8.0,** The Scottish Symphony, Op. 56 (Mendelssohn) by the Station Orchestra, conducted by Jan Junota. **8.30,** Illustrated Talk on Modern Czech Poetry. **9.0,** Song Recital by Marie Fialova. **9.20,** See **Prague. 10.15** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Concert by the Small Orchestra, conducted by P. Leemans: Cortège du Serdar (Delmas); Little Suite (Kálmán); Tes yeux (Bonincontro); Selection from Les Mousquetaires au Convent (Varney); Flute Solo: Souvenir de Spa (Meurice); Italian Serenade (Caludi); Waltz, A tes genoux (Mambour); Fantasia on Franco-American Airs, Les Airs de St. Granier (Salabert). **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert: Overture, Light Cavalry (Suppé); Selection from Grisélidis (Massenet); Slav Dances Nos. 1, 2, 3 and 4 (Dvořák); Air from Monna Vanna (Février); Valse caprice (Rubinstein); Jota aragonesa (Sarasate); Overture, Poet and Peasant (Suppé). **5.0,** Concert by the Radio Orchestra, conducted by Franz André; March, Vieille alsace (Wangermée); Four Musical Tableaux (Daneau); Romance No. 2 for Violin (De Taye); Espagnoliosi (Gossiaux); Les mères d'à présent (Labbé-Trémolo); Le joueur de luth (Labbé - Trémolo); Ma Normandie (Labbé-Trémolo); L'arrivée du Cirque (Rust); Italian Serenade (Caludi); Simple bonjour (Deprez); Violin Solo: Chanson à Lorette (Collin); Paysages wallons (De Taye). **6.0,** Talk: Accidents at Work and Occupational Diseases—The Teeth. **6.15,** Schumann Music on Gramophone Records: Der Nussbaum; In der Ferne; Ich grolle nicht; The Two Grenadiers. **6.30,** Sonata (Leken), with Commentary. **7.15,** Talk: The Belgian Painter, Adolphe Strebelle. **7.30,** Theatre and Film Reviews. **8.0,** Concert by the Radio Orchestra, conducted by Franz André: Cramignons Liégeois; Overture, La Chasse du Jeune Henri (Méhul); Spanish Pieces (Albeniz); Russian Potpourri (Schirmer); Violin Solo: Waltz (Saint-Saëns-Ysaye); Tempo-Tempo (Dostal); Ballet Music from The Sleeping Beauty (Tchaikovsky). In the interval at **8.5,** Les Flaireurs—Play in One Act (Charles Van Leberghe). **9.0,** Le Tableau parlant—Opera (Grétry). **10.0,** Le Journal Parlé. **10.10,** Dance Music, relayed from the St. Sauveur Palaise de Danse.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—**12 Noon,** Selection from I Pagliacci (Leoncavallo), on Gramophone Records. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by Leemans. **5.0,** Brahms Concert by the Symphony Orchestra, conducted by J. Kumps: Academic Festival Overture; Variations on a theme by Haydn; Three Airs transcribed for Orchestra; Suite of Hungarian Dances. **5.45,** Programme for Children. **6.30,** Gramophone Concert: Overture, The Bartered Bride (Smetana); Capriccio (Haydn); Death of Isolda from Tristan and Isolda (Wagner); Prelude in C (Prokofiev); Zigeunerweisen (Sarasate); Suite, Mother Goose (Ravel). **7.15,** Talk on Folklore. **7.20,** Talk: The Coming Celebrations in Honour of Peter Benoit. **7.30,** Le Journal Parlé. **8.0,** Concert by the St. Cecilia Royal Military Band, for its Seventieth Anniversary, relayed from **Rupelmonde;** Conductor: Victor Vandermeiren: March, Samarkand (Van der Meiren); March Jubilaire (De Boeck); Air varié for Trombone (Cristophe); Cornet Duet: Polka, Les deux Fauvettes (Langlois); Fantasia Salut á Badajor (Donlier); Marche panegyrique (Gilson). **8.45,** Talk on Stamp Collecting **9.0,** Two Songs (Meulemans): (a) Weemoed, (b) Wiegelied. **9.10,** Concert (contd.): Concert Duet for Trombone and Cornet (Metehen); La Philente (Gilson); Trombone Solo: Carnival in Venice (Ganglois); Der Rosehochzeitszug (Jessel); Pasodoble, Vlaamsch en Vrij (Van der Meiren). **10.0,** Le Journal Parlé. **10.10,** Light Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**4.0 p.m.,** Concert by the Station Orchestra: March (Menichetti); Waltz from Casanova (Lincke); Melody (Asthon); Ballet Music from La Juive (Halévy); Krakowiak (Leopold). **5.0,** Radio Journal. **5.15,** Concert (contd.): Potpourri of Romanian Music (Welsch); Selection from Don Giovanni (Mozart). **6.0,** Talk: Romanian Law since 1864. **6.20,** Two Talks. **6.55,** Time Signal. **7.0,** Quartet in G (Dvorak) by the Sarvas Quartet. **7.30,** Talk. **7.45,** Recital on Two Pianofortes by Mme. Mitzi Klein Hintz and Ortrun Bruckner; Sonata (Bach); Suite (Arensky). **8.15,** Trio in G Minor (Smetana) by the Sarvas Trio. **8.45,** Radio Journal. **9.0,** Concert of Light Music and Romanian Music by the Dinico Orchestra. **9.30** (approx.), Close Down.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW. Also relayed on **840 metres** from **6.45 p.m. to 12 Midnight.—5.0 p.m.,** Talk. **5.30,** Hungarian Folk Song Recital. **6.20,** German Lesson. **6.50,** Pianoforte Recital by Johann Baranyi. **7.25,** Humorous Programme. **8.0,** Concert conducted by Sergio Falconi, relayed from the Academy of Music: Overture, Leonora No. 3 (Beethoven); Seventh Symphony (Beethoven); Suite from Hary Janos (Kodaly); Nocturne (Martucci); Novelette (Martucci); Overture, Tannhäuser (Wagner). **10.0,** News. **10.10** (approx.), Popular Music on Gramophone Records. **11.0,** Talk in English. **11.15** (approx.), Concert by the Alexander Dura Cigány Band, relayed from the Hotel Dunapalota. **12.0** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **KALUNDBORG, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Town Hall Chimes. **12.1 to 2.0 p.m.,** Concert from the Hotel d'Angleterre. **2.50,** Talk for the Housewife. **3.0,** Orchestral Concert, conducted by Teddy Petersen, relayed from the Wivex Restaurant. **5.0 to 5.20,** Reading. **5.40,** Exchange and Fish Market Prices. **5.50,** Talk. **6.20,** English Lesson. **6.50,** Weather Report. **7.0,** News Bulletin. **7.15,** Time Signal. **7.30,** Talk; Between Two Five Year Plans. **8.0,** Town Hall Chimes. **8.1,** Operetta Concert by the Radio Orchestra, conducted by Emil Reesen. Soloist: Paul Hansen (Songs). Overture, La Mascotte (Audran); Selection from Mam'selle Nitouche (Hervé); Overture, La Belle Hélène (Offenbach); Songs: (a) Simon's Song from Der Bettelstudent (Millöcker), (b) Song from Der Feldprediger (Millöcker), (c) Song from Les Cloches de Corneville (Planquette), Overture, Lysistrata (Lincke); Selection from Die indische Witwe (O. Straus); Waltz from The Yellow Jacket (Lehár); Songs: (a) Song from The Merry Widow (Lehár), (b) Song from Countess Maritza (Kálmán); Selection from Tip Toes (Gershwin). **9.15,** Radio Pictures from Daily Life. **9.45,** Flute Recital by Erik Thomsen, with Accompaniment by Folmer Jensen (Harpsichord). **10.5,** News Bulletin. **10.20,** The Third Symphony in C, Op. 32 (Ludolf Nielsen) by the Radio Symphony Orchestra, conducted by Launy Gröndahl. **11.0,** Dance Music from the Lodberg Restaurant. In an interval at **12 Midnight,** Town Hall Chimes. **12.20 a.m. (Tuesday),** Close Down.

CORK.—See **Athlone.**

DANZIG. See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,327 kc/s, 225 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C. Announcers: C. Danvers Walker, B. McNabb,

APRIL 10th **MONDAY** *continued*

and F. Lamping. **5.30 p.m.**, Military Band Concert of Request Items for Hastings and Eastbourne Listeners: Overture, Poet and Peasant (Suppé); Father of Victory; Hungarian Rhapsody No. 2; Cornet Solo: The Rosary; Selection from Iolanthe (Sullivan); In a Persian Market (Ketelbey); The Squirrel Dance; Selection from The Pirates of Penzance. **6.15**, Concert of Light Music for Chichester and Bognor Listeners: Orchestra: Waltz Favourites; Songs: (a) Cuban Love Song, (b) One Morning very early; Pianoforte Solo: Selection from The Cat and the Fiddle; Song, Only a Rose; Orchestra: Old Time Memories; Songs: (a) Little Brown Owl, (b) When the House is asleep; Pianoforte Solo: One Night alone with you; Song, Song of the Vagabonds; Orchestra: Cheer Up, Good Times are Coming. **7.0 to 10.0**, Programme in French. **10.0 p.m.** till Close Down, Programme in English by the I.B.C. **10.0 p.m.**, Light Music: Sunny Days; Blue Lagoon; When I close my Eyes and Dream; All through the Night; Cuban Love Song; Chérie, c'est vous; Crying myself to sleep; Sing Something simple: I like to do Things for you; A little Love Song; In my little Hope Chest; Maybe it's Love; On a Chocolate Box; For you; Old Spanish Moon. **11.0**, Orchestral Music: Frühlingsstimmen (Joh. Strauss); Liebesfreud (Kreisler); Violin Solo: Spanish Dance (Falla); Gavotte in B flat (Handel); Autumn Leaves (Voglein); Souvenir de Capri (Becce); Violin Solo: Tambourin chinois (Kreisler); Morgenblätter (Joh. Strauss). **11.30**, Negro Spirituals by the Studio Chorus: I got a Robe; Deep River; Solo: Sometimes I feel like a Motherless Child; Couldn't hear Nobody pray; Go down, Moses; Solos: (a) Nobody knows de Trouble I've seen, (b) Ev'ry Time I feel de Spirit; Levee Song; Swing low, sweet Chariot. **12 Midnight**, Club Concert for Peterhead Listeners: The Gay Gordons; Masquerade; Love is the sweetest Thing; Caller Herrin'; Highland Schottische; We just couldn't say Goodbye; The Buggins' Picnic; Sweet Murcha cha; Song: Patiently smiling (Lehar); Waltz from Der Rosenkavalier (R. Strauss); March, Sambre et Meuse; Song, You are my Heart's Delight (Lehar); Love's Dream after the Ball (Czibulka). **1.0 a.m. (Tuesday)**, Accordion Music: Selection from Carmen; C'est un petit nid; J'aime la musique; Javanette; Les bas à pointes; Mona Lisa; The Waltz that made you mine. **1.30**, Songs: Meet me in my Dreams To-night; Charming; My Love Parade; Orchestral Interlude: On with the Show; Excuse me, Lady; Go to Bed; I'm just a Vagabond Lover. **2.0**, Dance Music: Mimi; I'll follow you; Isn't it romantic?; A Million Dreams; Here's hoping; I don't want to go to Bed; Always in my Heart; What would happen to me?; Dreaming; Wheezy Anna; Wanderer; Night after Night; Just an Echo in the Valley; A little Street where old Friends meet. **2.57**, I.B.C. Good-night Melody. **3.0**, Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—5.0 p.m.**, See **Stuttgart. 5.50**, Economic Notes. **6.0**, Radio Report on the Air Defence Exhibition. **6.25**, English Lesson. **6.50**, Time, Programme Announcements, Weather, and Economic Notes. **7.0**, Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0**, The Fate of German Emigrants in Five Continents—Radio Sequence (F. C. Westphal). **9.10**, Orchestral Concert, conducted by Reinhold Merten; Soloist, Nelly Maerz (Soprano). **10.15**, Time, News, Weather, and Sports Notes. **10.35**, Late Concert. Part I: Songs from the Mountains, sung to the Lute by Elsa Laura von Wolzogen; Part II: Orchestral Music, conducted by Reinhold Merten; Overtures to (a) Iphigenia in Aulis (Gluck), (b) Der Schauspieldirektor (Mozart), (c) The Ruins of Athens (Beethoven); Jubilee Overture on the Dessau March (Lortzing); Overture, Faust, Op. 60 (Spohr); Frühlings-Ouvertüre (Goetz). **12 Midnight** (approx.), Close Down.

FRIEDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.—5.55 p.m.**, The Xylophone and the Marimba—Talk with Illustrations. **6.25**, Talk on Unemployment. **6.45**, Frankfurt Exchange and Hamburg Market Prices. **6.50**, Weather Report. **7.0**, Transmission for all German Stations. **8.0**, See **Breslau. 8.50**, News Bulletin. **9.0**, Kupanda Scharo—Radio Play (Walter Redeker). **10.0**, Time and News. **10.10**, Topical Talk. **10.20**, The German Country—Concert by the Station Orchestra and Quartet, conducted by Adolf Becker. Soloist: Bernhard Jakschtat. Overture, Alster Regatta (Fetras); Am Wörther See (Koschat); Folk Song, Am Brunnen vor dem Tore; Styrian Dances (Lanner); Frohsinn auf den Bergen (Fetras); Dorfschwalben aus Niederösterreich (Joh. Strauss); Alsatian Dances (Merkling); Folk Song, An der Saale hellem Strande; Abendempfindung im Gebirge (Müller); Ball auf der Alm (Seidl).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.—11.30 a.m.**, Concert by the Little Station Orchestra, conducted by Eugen Wilcken. **1.5**, Gramophone Concert. Helenen-Marsch (Lübbert); Tränen weint jede Frau so gern (Kaper); Old Bavarian Ländler (Moar); Gruss aus Ober-Inntal (Moar); Selection from The Merry Widow (Lehár); An Evening in Carolina (Donaldson); By the Sycamore Tree (Gillespie); Song of the Volga Boatman; Russian Folk Song, The Twelve Robbers; Selection from The Show Boat (Kern); March, Fridericus-Rex (Radecke); La Paloma (Yradier); Third Waltz Potpourri (Robrecht); Selection from Paganini (Lehár); A Sträuss'l am Hut (Standacher); Bayrisch Zell (Standacher); Baby's First Watch (Sherman); Gitana-Marsch (Piefke); Gruss an Kiel (Spohr). In the interval at **1.20**, News. **2.30 (Danzig)**, Exchange Quotations. **3.0**, Exchange Quotations. **3.30**, Programme for Young People. **4.0**, Concert by the Little Station Orchestra, conducted by Eugen Wilcken. Part I: Juel Frederiksen Programme on the Composer's Sixtieth Birthday. Suite, Scandinavian Sketches; With Violins and Clarinets; Pan dances; Suite, A Wedding Trip through Scandinavia; Ballet Scene, Piazza del Popolo; Greenland Suite. Part II, Festival Overture (Lortzing); Waltz, Tout Paris (Waldteufel); Melodies from Liszt (Morena); Selection from The Gipsy Princess (Kálmán). **5.45**, Wireless Technical Talk. **6.15**, Market Prices. **6.25 (from Danzig)**, Talk: The Fourteenth-century Danzig Hospital, Heiligen Leichnam. **6.50**, Talk: Memorable Days of the Week, followed by Weather Forecast. **7.0**, Transmission for all German Stations. **8.0**, See **Breslau. 8.55**, News Bulletin. **9.10**, See **Berlin (Witzleben). 10.0**, Weather, News and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**). Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.).—**11.40 a.m.**, Organ Recital by A. Smink, with Songs by C. van Hoogenhuyze (Soprano). Toccata in C Minor (Muffat); Soprano Solos: (a) Morir Voglio (d'Astorga), (b) Sento nel Core (Searlatti), (c) To Iris (Haydn); Prelude and Fugue in A Minor (Bach); Allegretto from Sonata No. 4 (Mendelssohn); Soprano Solos: (a) Was hatte Jesus doch Begangen? (W. Franck), (b) Jesus in Gethsemane (Bach) (c) Zu Flucht in der Anfechtung (Bach), (d) Ein fröhliches Gesang (Corner); Toccata and Fugue in D Minor and D Major (Reger). **12.40 p.m.**, Time Signal. **12.41**, Concert by the Wireless Orchestra, conducted by Nico Treep. March (Karel); Overture, Don Giovanni (Mozart); Masquerade from The Merchant of Venice (Sullivan); Violin Solo: Romance (Svendsen); Waltz, Myosotis (Waldteufel); Gramophone Records; Rondalla espagnola (Cassado); Selection from Mirella (Gounod); Una Noche en el Garron (Pizzaro); Galleguita (Petrosi); Hochzeitszug in Lilliput (Translateur); Fest der Zwerge (Nonck); Fairy Feet (Finck); Gramophone Records; Waltz, Gross Wien (Strauss); Leuchtkäferchens Stelldichein (Siede); Selection from Der Obersteiger (Zeller); March, The Handicap (Rosey). **2.55 to 3.10**, Interval. **3.10**, Orchestral Music. Selection from: (a) The Show Boat (Kern-Salabert), (b) Nina Rosa (Romberg-Witmark), (c) La vie Parisienne (Offenbach-Chapeli). **3.40**, Reading. **4.0**, Light Music on Gramophone Records. **4.40**, Song Recital by Dzjobs Ising; Six Gipsy Songs (Brahms); Five Songs (Richard Strauss): (a) Die Nacht, (b) Schön sind, doch kalt, (c) Die Zeitlose, (d) Allerseelen, (e) All mein Gedanken. **5.10**, Talk on Jules Massenet, with Illustrations on Gramophone Records. **6.10**, Concert by the Eugen Swerkoff Ensemble. **7.10**, Book Review. **7.40**, Concert by Pierra Palla (Organ), Henk Viskil (Tenor), and Boris Lensky (Violin), relayed from the Kurhaus Scheveningen. **8.10**, Talk. **8.40**, Time Signal, Weather Forecast and News. **8.45**, Concert (contd.). **10.0**, Running Commentary on the Six Days' Racing, relayed from the Vélodrome d'Hiver, Paris. **11.10**, Concert by Kovacs Lajos and his Orchestra. **11.40**, News. **11.50**, Concert (contd.). **12.40 a.m. (Tuesday)**, Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**12.10 p.m.** till Close Down, programme of the Christian Radio Society (N.C.R.V.). **12.10 p.m.**, Gramophone Records. **12.40**, Police Notes. **12.55**, Song Recital by Heinrich Schlusnus; Heimweh (Wolf); Heimliche Aufforderung (R. Strauss); Rheinlegendchen (Mahler); Der Tambourgesell (Mahler). **1.10**, Organ Recital by Jan Zwart, relayed from a Church in Amsterdam. Prelude and Fugue in D (Bach); Aria Serioza (Karg Elert); Quasi Marcia (Karg Elert); Canzone (Karg Elert); Sonata No. 3 in A (Mendelssohn); Potpourri (Zwart); Sonata No. 5 in D (Mendelssohn); Pastorale (Best); Scherzo (Best); Romance (Best); Prelude and Fugue (Handel); Potpourri (Zwart). **2.40**, Broadcast for Schools. **3.15**, Two Songs on Gramophone Records. **3.25**, Talk for Housewives. **3.55**, Dressmaking Lesson. **4.25**, Wireless Notes. **4.40**, Bible Reading with Sacred Music. **5.40**, Gramophone Record: Selig, sind die da Leid tragen (Brahms). **5.55**, Sacred Songs. **6.55**, Concerto in G for Harpsichord, Two Violins and 'Cello (Bach). **7.10**, Answers to Correspondence. **8.10**, Police Notes. **8.25**, News Bulletin. **8.40**, Organ Recital by Henk Loohuys, relayed from a Church in Amsterdam. Toccata and Fugue in D Minor (Bach); Two Choral Preludes (Bach); Prayer, Berceuse and Invocation (Guilmant); Sixth Sonata (Mendelssohn); Two Pieces (Loohuys). **9.40**, Talk: Education and Intellectual Life in Finland. **10.10**, Soprano and Contralto Song Recital by Helene Ludolph and Jo v.d. Meent-Walter; Duets (Tchaikovsky): (a) Der Abend, (b) Tränen, (c) Morgenrot; Soprano Solos (Tchaikovsky): (a) Nur wer die Sehnsucht kennt, (b) O singe Mutter die Weise; Contralto Solos (Dvorák): (a) Lasst mich allein, (b) Die Stickerin, (c) Am Bache; Duets (Dvorák): (a) Fliege, Vöglein, (b) Freundlich lass uns scheiden; Gramophone Record: Lenton from the Quartet, Op. 96 (Dvorák); Three Biblical Songs for Contralto (Dvorák); Soprano Solos (Dvorák): (a) Mein Lied ertönt, (b) Rings ist der Wald, (c) Als die alte Mutter; Duets (Dvorák): (a) Grüne du Gras, (b) Der Ring. **11.20**, News Bulletin. **11.30**, Classical Music on Gramophone Records. **12.10 a.m. (Tuesday)**, Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**8.30 p.m.**, Radio Concert. **9.0**, Weather and News. **9.15**, Dramatic Programme. **12 Midnight to 1.0 a.m. (Tuesday)**, Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight**, I.B.C. Variety Hour. **12.57 a.m.**, I.B.C. Goodnight Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**7.0 p.m.**, Talk on History. **7.5**, Announcements and Popular Music on Gramophone Records. **7.25**, Talk for Firemen. **7.30**, See **Warsaw. 8.0**, Popular Music. **8.20**, See **Warsaw. 11.5**, Marathon—Play (Corneille Ujejski), in Modern Greek.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 60 kW. Relayed by **Helsinki, 815 kc/s, 368.1 metres.—5.0 p.m.**, Talk. **5.20**, German Lesson. **6.15**, Agricultural Talk. **6.25**, Song Recital by Elli Ranta. Aria from Madame Butterfly (Puccini); Song (Kuula); Suite, Summer Clouds (Ranta); Solveig's Lullaby (Grieg). **6.45**, Talk. **7.5**, String Quartet Concert, relayed from the Conservatoire. String Quartet No. 1 (Krenek); String Quartet in C, No. 17 (Mozart); String Quartet, Voces intimae, Op. 56 (Sibelius). **8.45**, News in Finnish. **9.0**, News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**11.20 a.m.**, Gramophone Concert: Overture, Die Felsenmühle (Reissiger); Concert Waltz, O schöner Mai (Joh. Strauss); Potpourri of Folk Songs (arr. Markgraf); Ballet Suite (Popy); Selection from Der Obersteiger (Zeller). **12 Noon**, Concert by the Station Chamber Orchestra. **12.50 p.m.**, Weather, Time, and News. **1.0**, Concert by the Münster Orchestra: March, Mit Feuer (Gutzeit); Jubel-Ouvertüre (Bach); Third Little Suite (Michel); Waltz, Freut euch des Lebens (Strauss); Selection from William Tell (Rossini); Symphonic Piece, Das Herz des Pierrot (Clemus); Scherzo, Sonnenkind und Wolkenmann (Clemus); Selection from Frau Luna (Lincke). In the interval at **2.0 p.m.**, News. **2.30**, Meat Market Prices. **3.30**, Economic Notes and Time Signal. **3.50**, Programme for Young People. Part I: An Easter Trip to the Dead Sea. Part II: Work for Young People. **4.30**, Concert by the Station Orchestra, conducted by Kühn. Soloists: Therese Pott and Egbert Grape (Pianoforte). Concerto in C Minor for Two Pianofortes and Orchestra (Bach); Old Hamburg Opera Suite, after Operas by Reinhard Keiser (Unger); Variations on an original Theme for Two Pianofortes (Unger); Four Pieces from the Suite Le Bourgeois Gentilhomme (R. Strauss). **5.45**, Talk: German Women in Bauat. **6.5**, Talk for Parents. **6.25**, Talk: The German Money Market. **6.45**, Weather, Time, Exchange, and Sports Notes. **7.0**, Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0**, First General News. **8.5**, Concert of Dances and Marches by the Little Radio Orchestra, conducted by Eysoldt. In the interval: Des Knaben Wuunderhorn, by the Station Chamber Choir, directed by Zimmermann. Introductory Talk by Paul Heinrich Gehly. **10.5**, News, Sports Notes. **10.30**, Serenade on Gramophone Records. **10.45**, Programme from **Frankfurt. 12 Midnight**, Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—12 Noon**, Folk Music on Gramophone Record, followed by Weather and Time. **1.0 p.m.**, News, Weather and Time. **1.15**, Italian Music on Gramophone Records: Serenata d'amore (Becce); Enrico Caruso: Three Songs (Tosti): (a) Goodbye, (b) A vucchella, (c) Ideale; Tesoro mio (Becucci); Serenade (Billi-Malfetti); Elizabeth van Endert: Three Songs (Tosti): (a) Songs, (b) La mia canzone, (c) Vorrei morire; O sole mio (di Capua); Funiculi-Funicula (Denza); Ballet Music from La Gioconda (Ponchielli), followed by Exchange Quotations. **2.0**, Art and Film Reports. **2.30**, The Gardener's Calendar for April. **2.45**, Reading (Paul Horn). **3.10**, Talk for the Housewife. **3.30**, Economic Notes. **4.0**, Concert by Ruth Gehrs (Contralto), Lotte Keüg Soprano), Herta Steglich (Pianoforte), Georg Hering (Tenor) and Conrad Schreger-Prasse (Accompanist). **5.30**, Weather and Time. **5.35** (approx.), Talk: The Theatre of the Baroque Period. **5.50**, Exchange Quotations. **6.0**, Educational Talk. **6.30**, Hans Kyser speaks on his Play, York. **6.50**, Handbook on Business and Vocations. **7.0**, Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0**, See **Breslau. 8.30**, Concert by the Station Orchestra, conducted by Theodor Blumer: Andante cantabile from Symphony No. 4 in B Flat—the London (Haydn); Ballet Music (Beethoven); Ballet Music from Rosamunde (Schubert); In der Burgruine from Der Amtmann von Gibichenstein (Frey); Feierliche Musik, Op. 65 (Stürmer). **9.15**, You can't improve on Nature—An Ironical Radio Sequence (Jochen Günther). **10.5**, News. **10.10** (approx.), Concert by the Dresden Philharmonic Orchestra, conducted by Willy Steffen; Sinfonietta in A, Op. 141 (Karl Elert); Nachtmusik, Op. 31 (Kiesseg); Easter Symphony (Baum). **12 Midnight** (approx.), Close Down.

LINZ.—See **Vienna.**

LWOW

788 kc/s, 381 metres; 16 kW.—**7.0 p.m.**, Talk on Esperanto. **7.15**, Miscellaneous Items. **7.30**, See **Warsaw. 8.0**, Reading: The Crisis. **8.20**, See **Warsaw. 10.0**, See **Stockholm. 11.0**, See **Warsaw. 11.5** (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—**7.30 p.m.**, Radio Gazette for Lyons and the South-East. **8.30**, Instrumental and Vocal Concert; Soloist: Yves Tinayre (Tenor). After the Concert, News Bulletin and Report on the Six Days' Cycling Race.

MADRID

ARANJUEZ (EAQ), 9.860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.**, Concert of Variety Music. **11.45**, Radio Chronicle. **12 Midnight**, Concert (contd.). **12.35 a.m. (Tuesday)**, Tourist Talk: Segoria. **12.40**, Light Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.**, Chimes, Exchange Quotations, Radio Journal, and Programme relayed from the Ateneo. **9.15**, News Bulletin. **9.30** (approx.), Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**5.50 p.m.**, Light Music on Gramophone Records. **6.**, Literary Review. **6.15**, See **Prague. 6.3**, German Transmission: Variety Music on Gramophone Records. **7.0**, See **Prague. 7.2**, See **Brno. 9.0**, See **Prague. 10.15** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserlautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.—5.0 p.m.**, Orchestral Concert, conducted by Erich Kloss. **6.5**, Talk: The Industrial Policy of the National Socialists. **6.25**, Talk: Stephan Ludwig Roth. **6.45**, Time, Weather and Agricultural Notes. **7.**, Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0** (from **Nürnberg**), Military Band Concert. **9.5**, Die Bauernpassion—an Easter Play (Richard Billinger). **9.45**, Recital of Sacred Music. **10.20**, Time, Weather, News, and Sports Notes. **10.45**, Serenade from **Frankfurt. 12 Midnight** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.** —**5.0 p.m.,** Concert of Chamber Music by the Station Ensemble. **6.0,** Theatre Notes. **6.30,** Reading. **7.0,** Announcements, Weather and News. **7.30,** Talk: Medicinal Plants and Superstitions, relayed from **Bergen, 824 kc/s, 364 metres.** **8.0,** Time Signal. **8.1,** Pianoforte Recital by Irwin Schenkmann. **8.40,** Concert, relayed from **Trondheim, 605 kc/s, 495.8 metres.** **9.10,** Political Review. **9.40,** Weather and News. **10.0,** Topical Talk. **10.15,** Concert of Norwegian Music by the Vaalerengen Choir; Conductor: Olav Gurvin. **10.45** (approx.). Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**6.0 to 6.30 p.m.,** Programme for Children. **8.0,** Dopolavoro Notes, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society, and Giornale Radio. **8.20,** Light Music on Gramophone Records. In the interval at **8.30,** Time and Announcements. **8.45,** Concert, followed by Light Music on Gramophone Records. **10.55,** News.

PARIS

EIFFEL TOWER (FLE), 207.5 kc/s, 1,445.7 metres, 13 kW.—Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**6.45 p.m.,** Theatre Review. **7.0,** Le Journal Parlé. **8.20,** Weather Report. **8.30,** Concert of Airs from Operetta. **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN; 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Hot Jazz on Gramophone Records. **7.30,** Concert of Light Music on Gramophone Records. **8.0,** Scientific Talk. **8.5,** Talk on Motor Cars. **8.15,** Interval. **8.30 to 10.40,** Sponsored Concerts. **10.40,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **8.0,** Press Review and Weather. **12 Noon,** Concert by the Radio Paris Orchestra: Overture, I promessi sposi (Ponchielli); Selection from L'étoile du nord (Meyerbeer); Extracts from Act III of aust (Gounod); Two Extracts from La Prise à Troie (Berlioz); Divertissement from Les Erynnies (Massenet); Ballet Music from La Maladetta (Vidal). In the intervals at **1.0,** Exchange, News and Weather, and at **1.30,** Exchange. **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.30,** Variety Music on Gramophone Records. **6.50,** Film Review. **7.0,** Review of New Books. **7.20,** Concert by the Radio Paris Orchestra: Invocation à Schumann (de Séverac); Basque Suite (Bordes); La Chanson du Moulin (Lazzari). **7.45,** Commercial Prices and News. **8.0,** The Dance of the Dragonflies—Operetta (Lehár). In the intervals at **8.30,** News and Weather, at **8.40,** Review by Paul Reboux, and at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**10.0 p.m.,** Work-a-day Thoughts. **10.5,** Business News. **10.15,** Ballroom Promenade. **10.30,** Weather Report. **10.32,** Market Report. **10.45,** Lois Miller—Folk Songs. **10.57,** David Lawrence Dispatch. **11.0,** Programme to be announced. **11.15,** Dick Daring, from **New York.** **11.30,** The Singing Lady, from **New York.** **11.45,** Little Orphan Annie. **12 Midnight,** Booth Tarkington's Maude and Cousin Bill, from **New York.** **12.15 a.m. (Tuesday),** Time Signal. **12.16,** Weather Report. **12.17,** Teaberry Sport Review. **12.22,** Press News Reeler. **12.29,** Temperature Report. **12.30,** KDKA Orchestra. **12.45 to 2.45, New York** Relay. **12.45,** To-day's News by Lowell Thomas. **1.0,** Pepsodent Amos 'n' Andy. **1.15,** Tastyeast Jesters. **1.30,** Five Star Theatre, by the Marx Brothers. **2.0,** Cliquot Club Eskimos. **2.30,** Time Signal and Don Carney—A Talk for Dog Lovers. **2.45,** Programme to be announced. **3.0 to 4.30, New York** Relay. **3.0,** Sinclair Minstrels. **3.30,** Jack Frost Melody Moments. **4.0,** Three Keys. **4.15,** Vic and Sade. **4.30,** Eridge School of the Air by E. Hall Downes. **4.45,** Samuel Di Primio (Tenor). **5.0,** Time Signal. **5.1,** Teaberry Sport Review. **5.11.** Temperature Report. **5.12,** Weather Report. **5.13,** KDKA Artist Bulletin. **5.15,** Press Last-minute News. **5.20,** Smith Ballew and his Orchestra. **5.58,** KDKA Artist Bulletin. **6.0,** Hotel Bismarck Orchestra, from **New York.** **5.30,** Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** See **Bratislava.** **5.10,** Talk: Easter in the Olden Days. **5.20,** Talk. **5.30,** Programme for Children. **5.50,** Popular Music on Gramophone Records. **6.5,** Agricultural Report. **6.15,** Talk for Workers. **6.25,** News in German. **6.30,** German Transmission:: Talks: (a) The Art of Giving, (b) The Modern Woman and Her Household. **7.0,** Chimes. **7.1,** News Bulletin. **7.10,** English Lesson. **7.25,** See **Brno.** **9.0,** Time Signal. **9.1,** Song Recital by Hilda Reave. **9.20,** Concert by the Station Orchestra, conducted by Jeremias: Overture, The Bartered Bride (Smetana); Slav Dances, Op. 72, Nos. 16 and 15 (Dvorák); Sokol Festival March (Suk). Overture, A Night on Karlsteju (Fibich). **10.0,** Time Signal. **10.1,** News Bulletin. **10.15** (approx.). Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.: **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.**—**6.0 p.m.** (from **Lausanne**), Programme for Children. **6.30** (from **Lausanne**), Talk in German: Freiburg. **7.0** (from **Lausanne**), Weather and News. **7.30** (from **Lausanne**), Medical Talk. **8.0** (from **Geneva**), Concert. **8.20** (from **Geneva**), Chamber Music Concert. **9.15** (from **Lausanne**), Viennese Songs by Mena Burda (Soprano) and Max Reichhardt (Tenor). **10.0,** News and Weather. **10.15** (approx.), Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—**4.0 p.m.,** Concert of Light Music. **4.30,** Talk: Shorthand. **5.0,** Violin Recital: Sonata in G Minor (Handel); Concerto in D (Mozart). **5.30,** Agricultural Talk. **6.0,** Programme of Old Dances. **6.30,** English Lesson. **7.0,** Weather Report. **7.5,** Bizet Concert by the Radio Orchestra, conducted by Prof. Medins: First Suite from Carmen; First Suite from L'Arlésienne; Selection from The Pearl Fishers; Second Suite from L'Arlésienne. **8.0,** News Bulletin. **8.20,** Swedish Song Recital by Hanna Christiansen: The Princess (Grieg); Song (Sjögren); Obstination (Fautenaielles); Song (Gretchaninov); Song (Lüdig); Song (Kapp); Melody (Krull). **8.45,** Concert of Popular Music by the Radio Orchestra, conducted by Prof. Medins. In an interval at **9.0,** Weather and News. **9.30,** Dance Music. **10.30** (approx.). Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO; 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.**—**1.0 p.m.,** Time and Announcements. **1.2 to 2.15 p.m.,** Gramophone Concert of Variety Music. In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Children's Radio Review. **5.10,** Announcements. **5.15,** Exchange and Giornale Radio. **5.30,** Concerto for Four Pianofortes (Bach), conducted by M. Alfredo Casella, relayed from the Royal Philharmonic Academy. **7.0 (Naples),** Shipping and Sports Notes. **7.10,** Agricultural and Dopolavoro Notes. **7.20,** Giornale Radio. **8.0,** Time and Announcements. **8.15,** Song Recital by Anna Maria Landisa (Soprano): Ecca la zingarella (Cimarosa); Aria from A Masked Ball (Verdi); Aria from Mignon (Thomas). **8.30,** Sports Notes and Tourist Report. **9.0,** See **Turin.** **10.0,** Humorous Programme. **10.15,** Concert of Light Music. **10.55,** News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**8.30 p.m. to 1.0 a.m. (Tuesday), New York** Relay. **8.30,** The Revolving Stage. **9.0,** Talk. **9.15,** Soloist. **1.0 a.m.,** Boy Scout Programme. **1.15,** Stock Report. **1.30,** The Upstaters—Male Quartet. **1.45 to 3.30, New York** Relay. **1.45,** The Goldbergs—Comedy Sketch. **2.0,** Socony land Sketches. **2.30,** Voice of Firestone. **3.0,** A and P Gipsies. **3.30,** Buick Programme, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**12.28 p.m.,** Time Signal from Neuchâtel Observatory. **12.30,** Weather and News. **12.40** (from **Basle**), Russian Music on Gramophone Records, with Interludes by the Werefkin Sisters. **1.35,** Weather and Exchange. **1.40 to 3.30,** Interval. **3.30** (from **Zürich**), Light Music by the Radio Orchestra. **4.0** (from **Basle**), Concert of Waltzes by the Radio Quartet. **5.0** (from **Basle**), Extracts from Le carnaval des animaux (Saint-Saëns) on Gramophone Records. **5.10** (from **Basle**), Talk by Dr. Hans Noll. **5.30,** Weather. **5.35 to 6.30,** Interval. **6.30** (from **Zürich**), Talk: Passion Week and Easter in History and Folklore. **7.0,** Time and Weather. **7.15** (from **Zürich**), Elementary English Lesson. **7.45** (from **Zürich**), Mozart Concert by the Radio Orchestra, conducted by H. Hofmann. Soloist: Peter Speisen (Pianoforte). **8.40** (approx.) (from **Zürich**), Orchestral Concert of Music by Weber and Wagner, conducted by H. Hofmann. **9.30,** Weather and News. **9.40** (from **Zürich**), Opera Choruses and Soloists on Gramophone Records. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**4.45 p.m.,** Shorthand Lesson. **5.5,** Light Music on Gramophone Records. **6.5,** Reading. **6.30,** Ture Rangström Song Recital by Ester Ingman. **7.0,** Talk. **7.15,** Weather and News. **7.30,** Talk. **8.0,** Orchestral Concert. Overture, Rübezahl (Weber); Suite, Hungarian Scenes (Massenet); Aftonlandskap (Halvorsen); Waltz, Golden Rain (Waldteufel); Italian Caprice (Tchaikovsky). **9.15,** Talk: The Infancy of Civilisation. **9.45,** Weather and News. **10.0,** Instrumental Concert, relayed from a Church. Oskar Lindberg (Organ). Roman Dukstulsky ('Cello), and Set Svanholm (Songs). Prelude and Fugue in A Minor for Organ (Sjögren); Sonata for 'Cello and Organ (Caporale); Three Hymns (Roman-Vretblad); 'Cello Solos: (a) Andante (Handel), (b) Adagio (Bach); Two Hymns; Theme with Variations, for Organ (Nerruda). **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** French Operetta Music on Gramophone Records. **12.45** p.m., News Bulletin. **1.0,** Time and Exchange. **1.5,** Gramophone Records of Orchestras conducted by Gabriel Pierné. **2.0 to 4.45,** Interval. **4.45,** Talk on Bee-keeping. **5.0,** Orchestral Concert, conducted by Roskam: March, Hollywood (Leopold); Waltz, Spring's Awakening (Scassola); Airs from Le Mariage des Roses (Franck); Selection from Lakmé (Delibes); Le Rêve, for Cello and Pianoforte (Bodé); Suite variée (Pierné); Selection from Eva (Lehár). **6.0,** Talk on Films. **6.15,** Talk in German: Conrad Gottlieb Pfeffek. **6.30,** Orchestral Concert, conducted by M. de Villers: Overture, Zampa (Hérold); Suite from The Sleeping Beauty (Tchaikovsky); Selection from The Goldsmith of Toledo (Offenbach); Rhapsody No. 14 (Liszt); Bohemian March (Filipucci). **7.30,** Time and News. **7.45,** Popular Music on Gramophone Records. **8.15,** News in German. Lottery Results, and Announcements. **8.30,** Concert of Sacred Music relayed from the Church of St. Maximilian, Metz. Prelude and Adagio from Sonata No. 3 (Guilmant); Chant de Triomphe for Four Voices and Organ (Noyon); Pastorale (Couperin); Ecic Agnus Dei (Pretorius); Voyant de loin venir la Mort (Rolle); Stabat Mater (Nanini); Grand Fantasia (Schluty); Ave Verum for Four-Part a-capella Choir (Stollewerk); Adoramus te Christe, for Four-Part Mixed Choir (Perti); Tantum Ergo, for Four-Part Choir and Organ (Stollewerk); Organ Voluntary (Lemmens); Chimes. After the Concert, News in French.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relayed by **Freiburg, 527 kc/s, 570 metres.**—**12 Noon,** Gramophone Concert of Classical Music. **1.15 p.m.,** Time, News, Weather and Programme Announcements. **1.30,** Song Recital by the Kromer Song Group Double Quartet. **2.0,** Programme arranged by the Post Office. **2.15,** Programme arranged by the Post Office, relayed from **Karlsruhe.** **2.30,** Spanish Lesson. **3.0,** Elementary English Lesson. **3.30 to 4.0,** Interval. **4.0,** Schumann Song Recital by Maria Birnbaum: Er ist's; Nur ein lächelnder Blick; Stille Liebe; Mein Garten; Die Nonne; Sehnsucht. **4.30,** Orchestral Concert, conducted by Walter Blume. **5.50,** Time, Weather and Agricultural Notes. **6.0,** Talk by Barbara Bonin: My First Flight. **6.25,** See **Frankfurt.** **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen).** **8.0,** Concert by the Philharmonic Orchestra, conducted by Gustav Görlich. Soloist: Gerd Niemar-Post (Tenor). Overture, Hans Sachs (Lortzing); Aria from The Magic Flute (Mozart); Selection from The Queen of Spades (Tchaikovsky); Aria from Rigoletto (Verdi); Overture, The Thieving Magpie (Rossini); Rudolf's Aria from La Bohème (Puccini); Selection from L'Arlésienne (Bizet); Flower Aria from Carmen (Bizet). **9.10,** See **Berlin (Witzleben).** **10.0,** See **Stockholm.** **11.0,** Time, News, Weather and Programme Announcements. **11.20,** Chess Lesson. **11.50** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. — **6.15 p.m.,** Instrumental Solos. **6.30,** Songs from Opéra-Comique. **6.45,** Orchestral Suite, La Péri (Dukas). **7.0,** Accordion Solos. **7.15,** News and Racing results. **7.25,** Local News. **7.30,** Songs from Operettas. **7.45,** Orchestral Music. **8.15,** Songs from Sound Films. **8.30,** Opera Music: Selection from William Tell (Rossini); Scene from Lohengrin (Wagner); Polonnise from Boris Godunov (Mussorgsky). **8.45,** Music Hall Programme. **9.15,** Military Music. **9.30,** Light Music. **10.0,** Medical Talk. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Request Concert. **11.30 to 12 Midnight,** Programme in English by the I.B.C., W. Brown-Constable announcing. **11.30,** Pianoforte Solos: Musical Comedy Memories; The Diver; Mother Machree; Memories of Maurice Chevalier; Go down, Moses; I certainly don't need you; The Death of Nelson. **11.57,** I.B.C. Goodnight Melody. **12 Midnight,** News and Weather. **12.5 a.m. (Tuesday),** An Bal Musette. **12.15,** Instrumental Music: Variations on a Theme for Two Pianofortes (Beethoven); Selection from Poet and Peasant (Suppé). **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.30 p.m.** till Close Down, Programme from **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**5.30 p.m.,** See **Rome.** After the Relay, Giornale Radio, Agricultural and Dopolavoro Notes. **7.0,** Time and Gramophone Records of Variety Music. **7.20,** Giornale Radio. **7.45,** Tourist Report and Gramophone Records (contd.). **8.0,** Announcements, Weather, and Popular Music on Gramophone Records. **8.45,** Talk. **9.0,** Violin Recital by Bronislav Hubermann: Concerto (Beethoven); Concerto (Tchaikovsky). **10.0,** A One-Act Comedy, followed by Programme of Light Music on Gramophone Records. **11.0,** Giornale Radio.

VATICAN CITY

15.120 kc/s, 19.84 metres (Morning), and 5,969 kc/s, 50.26 metres (Evening); 10 kW. —**11.0 to 11.15 a.m.,** Religious Information in Italian. **8.0 to 8.15 p.m.,** Religious Information in Italian.

VIENNA

517 metres; 15 kW.: and **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,085 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 246 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—**7.20 p.m.,** English Lesson. **7.40,** Time, Weather and Programme Announcements. **7.50,** Talk: By Motor Car from Bombay to Vienna. **8.20,** Concert by the Vienna Chamber Orchestra, conducted by Rudolf Pehm. **9.10,** See **Berlin (Witzleben).** **10.0,** News and Weather. **10.15,** Concert from the Café Splendide.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Light Music on Gramophone Records. **1.20,** Weather Forecast. **1.25 to 3.10,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Answers to Correspondence. **3.35,** Technical Correspondence. **3.50,** Popular Music on Gramophone Records. **4.25,** Elementary French Lesson. **4.40,** Talk: Gold, Bank Notes, and Cheques. **5.0,** Pianoforte and Song Recital by Mme. Berson-Hansen (Pianoforte) and Mme. Roszowska (Mezzo-Soprano): Pianoforte Solos: (a) Impromptu, Op. 142 (Schubert), (b) Capriccio (Scarlatti), (c) Gavotte (Profjew), (d) Prelude in G Minor, Op. 32 (Rachmaninov); Mezzo-Soprano Solos: (a) Song (Rybicki), (b) Fragment (Wielhorski), (c) Song (Friemann); Pianoforte Solos: (a) Minuet and Rigaudon (Ravel), (b) Romance (Fauré), (c) Spanish Dance (Falla); Mezzo-Soprano Solos: (a) C'est mon ami (Marie Antoinette), (b) Ma poupée chérie (de Severac), (c) Song (Halm). In the interval: Announcements. **5.55,** Programme Announcements. **6.0,** Talk: Poland To-day. **6.20,** News. **6.25,** Popular Concert, relayed from the Cristal Restaurant. **7.0,** Miscellaneous Items. **7.20,** Agricultural Report. **7.30,** Topical Talk. **7.45,** Radio Journal. **8.0,** Technical Correspondence. **8.20,** Concert of Polish Music by the Station Orchestra. Soloists: Mme. Rabcewicz (Pianoforte), Mme. Uminska (Violin), and M. Salecki (Tenor). Pianoforte and Orchestra: Potpourri of Polish Melodies (Chopin); Song (Moniuszko); Violin Solo, Piece (Szymanowsky). **8.40,** Sports Notes. **8.45,** Radio Journal. **8.50,** Concert by the Station Orchestra, conducted by J. Oziminski. Soloist, Colette France (Violin). Overture, Raymond (Thomas); Violin Solos: Havanaise (Saint-Saëns), (b) Andante (Fiorillo), (c) Tarentelle (Wieniavsky); Spanish Dance (Falla-Kreisler); Ballet Music from Kassya (Delibes); Overture, Titus (Mozart); Concerto in E for Violin and Strings (Bach). **10.0,** See **Stockholm.** **11.0,** Aviation Weather Forecast and Police Notes.

WILNO

533 kc/s, 563 metres; 16 kW.—**5.55 p.m.,** Programme Announcements. **6.0,** See **Warsaw.** **6.20,** Announcements. **6.25,** Song Recital on Gramophone Records. **6.40,** Talk in Lithuanian. **6.55,** Talk. **7.15,** Sports Talk. **7.30,** See **Warsaw.** **8.50,** Request Gramophone Records. **10.0,** See **Stockholm.** **11.5** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

TUESDAY

APRIL THE ELEVENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Recital of songs from Kipling's "Just-so Stories." "Escape," a play by John Galsworthy.
LONDON REGIONAL	"The Saturday Game," a revue by Ernest Longstaffe.
MIDLAND REGIONAL	Chamber music
WEST REGIONAL	"More famous waltzes," orchestral concert.
SCOTTISH REGIONAL	Foundations of Scottish Music, a summing-up.

ABROAD

BERO-MUNSTER	8 p.m. Opera: "Manon Lescaut" (Puccini), from Berne.
BRUSSELS (No. 1)	8 p.m. Jongen Gala Concert, from the Conservatoire.
BUDAPEST	8.45 p.m. Acts 2 and 3 of "Parsifal" (Wagner).
COPENHAGEN	9.50 p.m. Second Act of Opera: "Schwanda the Piper" (Weinberger).
HUIZEN	10.15 p.m. Oratorio: The St. John Passion, by Vranken.
LANGENBERG	7 p.m. Symphony concert by the Station Orchestra, conducted by Buschkötter (relayed by other German stations).
MUNICH	9.20 p.m. Third Symphony in D minor (Bruckner).
RADIO-PARIS	9 p.m. Operetta: "Oh, Papa!" from the Théâtre des Nouveautés.
SOTTENS	8.30 p.m. Opera: "Figaro" (Mozart), from Lausanne.
WARSAW	8 p.m. Opera: "Turandot" (Puccini), from the Grand Theatre.

ALGIERS

824 kc/s, 364 metres; 13 kW.—**8.10 p.m.,** Shipping Notes. **8.15,** Agricultural Notes and Weather Forecast. **8.20,** Light Music. **8.55,** News Bulletin. **9.0,** Time Signal. **9.2,** Talk: Schools and Workshops in the South. **9.15,** Chamber Music Concert. **9.40,** News. **9.45,** Talk on Algiers. **10.0,** Concert of Oriental Music. **10.30,** News Bulletin. **10.35,** Concert of Oriental Music (contd.). **10.55,** News Bulletin. **11.0** (approx.), Close Down.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** British Market Report. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** Talk: Japanese Gardens at Tully. **8.0,** Concert of Compositions by R. O'Dwyer by the Station Orchestra. Conductor: The Composer. **8.30,** Violin Recital by W. E. Brady. **8.45,** The Station Orchestra. **9.15,** Sacred Songs by Margaret Pigott (Soprano). **9.30,** At the Ninth Hour—Passion Play by G. Fallon and Company. **10.0,** Irish Music by the Station Orchestra. **10.30,** Time Signal, News, Weather Report and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 860 kc/s, 349 metres; 8 kW.—**7.0 p.m.,** Trio Concert: Concerto No. 4 (Rameau); Canto appassionato (d'Azzurro); Gavotte Caprice (Bortkiewicz); Minuet from the Symphony in E flat (Haydn). **8.0,** Request Gramophone Concert. **8.30,** Exchange Quotations and Talk on Art. **9.0,** Light Music on Gramophone Records, followed by News. **9.15** (in an interval), Talk on Football. **10.0,** Chimes from the Cathedral, Weather Forecast, Messages for Seamen, Exchange and Market Prices. **10.10,** Sponsored Programme. **10.30,** Dramatic Programme: (a) El Señor Joaquin—Musical Play (Caballero), (b) Las Estrellas—Musical Comedy (Serrano). **12 Midnight** (in an interval), News Bulletin. **1.0 a.m. (Wednesday)** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres, 20 kW.—**5.30 to 6.30 p.m.,** Pianoforte Recital by Dora Colamussi. **8.0,** Agricultural Notes, Tourist Report and Dopolavoro Announcements. **8.20,** Giornale Radio and Weather. **8.30,** Time and Announcements. **8.35,** String Quartet Concert. Overture, Piccoli eroi (Manente); Sul lago Seibno (Salvetti); Suite marinaresca (Amadei); Popular Spanish Dance (de Jerez); Serenade, Dolce malinconia (Munière); Minuet, Mascherine eleganti (Coletta); Intermezzo, Idillio appassionato (Del Buono-Salvetti); Mormorio del mare (Salvetti); Overture, Der Schauspieldirektor (Mozart). In the interval, Talk. **10.30,** Concert, relayed from the Grand Hotel Moderno. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

KONIGS WUSTERHAUSEN. 183.5 kc/s, 1,635 metres; 60 kW.—**12 Noon,** Gramophone Concert of Opera Music. **12.55 p.m.,** Nauen Time Signal. **1.45,** News Bulletin. **2.0,** Gramophone Concert, relayed from **Berlin (Witzleben). 3.0,** Talk: The First Term at the University. **3.30,** Weather and Exchange. **3.45,** Reading of Bismarck's Letters. **4.0,** Legal Talk for Women. **4.30,** See **Leipzig. 5.10,** Reading from Poincaré's Diaries: The Year 1917 in France. **5.30,** Schumann Song Recital by Kurt Lehmann (Baritone): Schöne Wiege meiner Lieder; Ich sende einen Gruss; Du bist wie eine Blume; Mondnacht; Der Himmel hat eine Träne geweint; Intermezzo; Nur ein Lächelnder Blick; Stille Tränen. **6.0,** Poetry Reading. **6.5,** Talk: State or Private Insurance? **6.30,** Violin Sonata, Op. 18 (Richard Strauss), by Karl Steiner (Violin) and Heinrich Steiner (Pianoforte). **6.55,** Weather and News. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** See **Stuttgart. 9.15,** Political Review of Periodicals. **9.40,** Popular Music on Gramophone Records. **10.10,** Weather, News and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Orchestral Concert from **Hamburg. 12 Midnight** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**6.5 p.m.,** Brahms Song Recital by Ingrid Brebeck (Soprano). **6.25,** Review of Books. **6.50,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** The German Nation prepares for Easter—a Radio Report. **9.0,** Hugo Wolf—a Radio Picture (arr. Dr. Erich Fortner). **10.0,** Weather and News. **10.30,** See **Hamburg. 12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

985 kc/s, 304 metres; 13 kW.—**1.50 p.m.,** Exchange Quotations. **2.0,** Concert of Chamber Music and Descriptive Music. **6.15,** Radio Journal relayed from **Paris Ecole Superieure, 671 kc/s, 447.1 metres. 7.30,** News Bulletin and Exchange Quotations. **7.40,** Cooking Lesson for Women. **7.55,** Lottery Results. **8.0,** Topical Talk. **8.15,** News Bulletin. **8.30,** Programme to be announced.

BRATISLAVA

878 kc/s, 342 metres; 35 kW.—**6.25 p.m.,** German Transmission: News, Talk, and Agricultural Report. **7.0,** See **Prague. 7.10,** Talk on American Universities. **7.25,** Violin and Flute Recital. **7.55,** See **Prague. 8.30,** A Radio Play (Zeman). **9.0,** See **Prague. 10.15,** Popular Music on Gramophone Records. **11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by **Gleiwitz, 1,184 kc/s, 253 metres.—1.5 p.m.,** Weather for Farmers. **1.7,** Gramophone Concert: Overture, The Hermit's Bell (Maillart); Entr'acte from Khovanstchina (Mussorgsky); L'Apprenti Sorcier (Dukas); Hungarian Dance No. 1 (Brahms); Gavotte from Idomeneo (Mozart); Andante for Flute and Orchestra (Mozart); Turkish March, from The Ruins of Athens (Beethoven); Prelude to the First Act of Palestrina (Pfitzner). **1.45,** Time, Weather, News, and Exchange Quotations. **2.5,** Gramophone Concert: Third and Fourth Movements from the Fourth Symphony in F (the Pastoral) (Beethoven); Rural Suite (Scassola); Dance from Nell Gwyn (German); Rondo, The Cuckoo (Daquin); Waltz, Dortschwalben aus Oesterreich (Jos. Strauss). **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Handwork for Children. **4.10,** Song Recital by Giselda Derpsch (Soprano): Songs (Schubert): (a) Die Liebe hat gelogen, (b) Vor meiner Wiege, (c) Der Blumenbrief, (d) Klärchens Lied; Songs (Brahms): (a) Am Sonntag Morgen, (b) Der Tod das ist die kühle Nacht, (c) Immer leiser wird mein Schlummer, (d) Mädchenlied; Songs (H. Wolf): (a) In der Frühe, (b) Das verlassene Mägdlein, (c) Wie soll ich frölich sein? (d) Heb' auf dein blondes Haupt. **4.40,** Concert from **Leipzig. 5.15,** Agricultural Prices, followed by Book Review. **5.35,** Readings (Eberhard König). **6.5,** Programme to be Announced. **6.30,** Talk: The German Youth Movement. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Weather for Farmers, and Meat Market Prices. **8.5** Reading. **8.30,** From the Rococo to the Biedermeier Period—Concert Commentary. The Station Orchestra, conducted by Franz Marszalek and Soloists: Augusta Pooll (Soprano) and Hellmut Hallendorf (Tenor), and Hans Bachmann (Baritone). **10.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **10.25,** Political Newspaper Review. **10.50,** Theatre Talk. **11.0,** Through Fields and Meadows Programme by Kurt Scheerschmidt. **11.15,** Concert from Hamburg. **12 Midnight,** Close Down.

BRNO

1,076 kc/s, 279 metres; 14 kW.—**5.20 p.m.,** Sonata for Viola and Pianoforte, Op. 26 (Jirak). **5.50,** Light Music on Gramophone Records. **6.5,** See **Prague. 6.25,** Popular Music on Gramophone Records. **6.30,** Talk. **6.40,** Slovak Lesson for Czechs. **6.55,** Talk on Housing. **7.0,** See **Prague. 10.15,** Light Music on Gramophone Records. **11.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Symphonic Marches on Gramophone Records: Cavalry March (R. Strauss); Coronation March (Saint-Saëns); Turkish March from The Ruins of Athens (Beethoven); Marche héroique (Saint-Saëns); March of the Nobles from Tannhäuser (Wagner). **12.30 p.m.,** Recital of Walloon Songs (Davaux) by M. Wariginaire. **12.45,** Stenke Razin (Glazunov). **1.0,** Le Journal Parlé. **1.10,** Delibes Concert by the Small Station Orchestra, conducted by P. Leemans: Ballet Music from Coppélia; Le Pas des fleurs; Arioso; Ballet Music from La Source; Ballet Music from Lakmé. **1.45,** Kreisler Music: Kleiner Wienermarsch; Liebesleid; Schön Rosmarin; Vieux Refrain. **5.0,** Suite, In a Fairy Realm (Ketelbey), on Gramophone Records. **5.15,** Pianoforte Recital by Nelly Czaikovska: Rhapsody No. 4 (Brahms); Granada (Albéniz); Chorégraphie méridionale (Sevenants). **5.30,** Programme for Children. **6.5,** Literary Talk. **6.15,** Recital of Irish Melodies by Van Lier. **6.30,** Lehár Concert by the Small Station Orchestra, conducted by P. Leemans: Waltz from Eva; Dance of the Dragonflies; Waltz, Gold and Silver. **6.45,** Organ Recital by Jean Collot: Allegro vivace from the First Symphony (Vierne); Largo (Handel); Paix Abbatiale (Peeters); Prière à Notre-Dame (Boëllmann); Fugue in D (Bach). **7.15,** Weekly Report of the Belgian Catholic Radio Society and Film Notes. **7.20,** Talk for Women. **8.0,** Concert of Music by Josef Jongen with the Composer at the Organ, relayed from the Conservatoire. The Station Symphony Orchestra, conducted by Jean Kumps. Soloists: Jeanne Thys (Mezzo-Soprano) and M. Misson (Violin). Three Dances from S'Arka; Concerto for Violin and Orchestra; Hymn for Organ and String Orchestra; Songs: (a) L'Epiphanie des exilés, (b) Les pauvres; Suite No. 3 in Old Style; Toccata from the Concert Symphony for Organ and Orchestra. **10.0,** Journal Parlé. **10.10,** Request Gramophone Records: Overture, Les Saltimbanques (Ganne); Addio alla madre from Cavalleria rusticana (Mascagni); Aria from Macbeth (Verdi); March of the Second Regiment of Carabineers (Prévost); March of the Third Regiment of Carabineers (Walnier). Selection from The Daughter of the Regiment (Donizetti); Two Airs from Le roi malgré lui (Chabrier). **10.40,** Choral in A Minor (Franck). **10.55,** Christus Vincit (Liszt).

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—**12 Noon,** Concert by the Small Station Orchestra, conducted by Leemans. **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Records of Variety Music. **5.0,** Concert by the Radio Orchestra, conducted by Charles Walpot: March, Le reve passé (Krier); African Dances (Montagne-Ring); Dolce Mignetto (Ordla); Sifflez Pierrettes (Popy); Third Waltz Potpourri (Robrecht); Humorous Variations on a Popular Theme (Blumann); Potpourri Contrasts (Robrecht). **5.40,** Programme for Children. **6.20,** Gramophone Concert of Light Music. **7.15,** Review of International Affairs. **7.30,** Tourist Report. **8.0,** Concert relayed from Menin. Soloists: Mlle. Bostels (Songs) and Mme. Blieck (Recitations). Overture, Chal Romano (Ketelbey); Clarinet Duet; Two Songs; Ballet Music; Ceremonial March (Wesly); Two Songs; Recitation; Four Songs for Two Voices; Selection from Tannhäuser (Wagner). **10.0,** Le Journal Parlé. **10.10,** Extracts from Faust—Opera (Gounod) on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**4.0 p.m.,** Concert of Light Music and Romanian Music by the Motoi Orchestra. **5.0,** Radio Journal. **5.15,** Concert by the Motoi Orchestra (contd.). **6.0,** Literary Talk. **6.55,** Time Signal. **7.0,** Song Recital by M. Serban Tessian: The Monastery (Mario Costa); Because (d'Hardelot); Air from Hamlet (Thomas); Aria from Hérodiade (Massenet). **7.20,** Symphony Concert, conducted by Michel Jora: Brandenburg Concerto (Bach); Roumanian Suite (Dragoi); Siegfried Idyll (Wagner); Symphonic Poem (Zirra), with Flute Solo; Symphony in B Flat (Schubert). **8.0** (in an interval), Talk. **8.45,** Radio Journal. **9.0,** Talk in French on Polish Literature and Art.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW.—Also played on **840 metres** from **7.15 to 12 Midnight.—5.0 p.m.,** Popular Music on Gramophone Records. **6.0,** French Lesson. **6.30,** Orchestral Concert, relayed from the Café Ostende. **7.15,** Talk. **7.45,** Hungarian Folk Song Recital by Gabi Erkel, with accompaniment by the Arpad Toll Cigány Band. **8.40,** Introductory Talk to the following Transmission. **8.45,** Acts Two and Three of Parsifal—Opera (Wagner), relayed from the Opera House. In the interval, Report and News. After the Programme, Concert by the Gyula Horváth Cigány Band, with Paul Kalnar in his Repertoire, relayed from the Café Ostende. **12 Midnight,** Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time and Chimes from the Town Hall. **12.5 p.m.,** String Ensemble Concert, conducted by Harald Andersen, relayed from the Bellevue Strandhotel. **2.0 to 3.0,** Interval. **3.0,** Concert by the Radio Orchestra, conducted by Emil Reesen. Soloist: Gerda Kirkeskov Jensen (Pianoforte): Overture, Il Guarany (Gomez); Selection from the Novelettes for Strings (Glazunov); Selection from Jolanthe (Tchaikovsky); Habanera (Chabrier); Mock Morris (Grainger); Pianoforte Solos: (a) Waltz (Brahms), (b) Gavotte (Prokofiev), (c) Tango (Albeniz), (d) Concert Etude in D Flat (Liszt); Coronation March from The Prophet (Meyerbeer); Waltz from Madame Pompadour (Fall); Selection from Orpheus in the Underworld (Offenbach); Minuet and Gavotte from Masques et Bergamasques (Fauré); Fête foraine from Namouna (Lalo). **5.0,** Programme for Children. **5.40,** Exchange and Fish Market Prices. **5.50,** Talk on Jerusalem. **6.20,** German Lesson. **6.50,** Weather Forecast. **7.0,** News Bulletin. **7.15,** Time Signal. **7.30,** Talk: Psychological Problems of Daily Life. **8.0,** Chimes from the Town Hall. **8.5,** Lumbye and Möller Concert by the Radio Orchestra, conducted by Launy Gröndahl: Three Pieces (Lumbye): (a) Mac Mahon March, (b) Waltz, Nordlys, (c) Brittapolka; Three Pieces (Möller): (a) Mazurka, Min Itsch, (b) Waltz, Souvenir à Th. Blanch, (c) Quadrille, Les artistes du Nord; Two Pieces (Lumbye): (a) Pompanavals, (b) Kobenhavns Jerabane Damp Galop; Two Pieces (Möller): (a) Polka-Mazurka, Nolens Volens, (b) Pepita Galop. **8.55,** The Artist and the Girl—Sketch (Franz Kollar), arranged for Radio. **9.10,** Serenade No. 2, Op. 23, for Two Violins (Viotti), by Mogens Hansen and Niels Jensen. **9.30,** Introductory Talk to the following Transmission. **9.50,** Act Two of Schwanda the Piper—Opera (Weinberger), relayed from the Royal Theatre. **11.0,** News. **11.15,** Dance Music from Nimb's Restaurant. In the interval at **12 Midnight,** Time and Chimes from the Town Hall. **12.30 a.m. (Wednesday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,327 kc/s, 226 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C. Announcers: C. Danvers Walker, B. McNab, and F. Lanping. **5.30 p.m.,** Concert of Light Music for Torquay and Exeter Listeners. Orchestra: (a) Potpourri Overture (arr. Leggett), (b) The Dance of the Tea Dolls (Smith Hagen); Songs: (a) Now I'm in Love (Yellen), (b) Rocked in the Cradle of the Deep (Knight), (c) At Dawning (Cadman); Orchestra: In a Chinese Temple Garden (Ketelbey); Songs: (a) A little Kiss each Morning (Woods), (b) I travel the Road (Thayer), (c) My lovely Celia; Orchestra: The Clock and the Dresden Figures (Ketelbey). **6.15,** Concert for Plymouth and Devonport Listeners. Octet: (a) Extase, (b) The Piccaninnies' Picnic; Song, The Crocodile; Octet: (a) Serenade, (b) Twilight on the Waters; Songs: (a) Kashmiri Song, (b) Temple Bells; Octet: (a) Träumerei, (b) The Butterfly; Song, Pretty Polly Perkins; Octet: (a) Humoresque, (b) The Grasshopper's Dance. **10.0 p.m.** till Close Down, Programme in English by the I.B.C. **10.0 p.m.,** Dance Music by the Ibcolians: Bessie couldn't help it; We all go oo, ha, ha, together; By my Side; If you can't sing, whistle; Dancing with Tears in my Eyes; Pardon me; Would you like to take a Walk; Dixiana; Have a little Faith in me; I haven't heard a Single Word from Baby; Sing you Sinners; Lady play your Mandoline; Bella Donna; What a Fool I've been; Little old Church in the Valley. **11.0,** Irish Music: Shamrock Land; Come back to Erin; The Irish Emigrant; Handbell Solo: Two of Irish; Terence's Farewell to Kathleen; Killarney. **11.30,** Songs: Let me sing, and I'm happy; Rollin' down the River; To my Mammy; Orchestra: Selection from The King of Jazz; When your Lover has gone; Dancing with Tears in my Eyes; Little Sweetheart of the Prairie. **12 Midnight,** Club Concert for Woodside Listeners. Jungle Drums (Ketelbey); Xylophone Solo; Jovial Jasper; Songs: (a) A Bachelor Gay (Tate), (b) Live for To-day (Fraser); The Battle of Waterloo (Eckerberg); Songs: (a) Ye Banks and Braes, (b) Piper of Dundee; Stein Song (Colcord); Songs: (a) Under the Spell of your Kiss (Jerome), (b) You're the One I care for (Lown); Xylophone Solo: Marionette; Song: Duncan Grey; Gaiety Echoes. **1.0 a.m.,** Hawaiian Music. Bye-bye Blues; On a little Street in Honolulu (Sherman); Serenata (Toselli); Polikiko Blues (Traditional); My Waikiki Mermaid (Traditional); All through the Night (Vallee); Speak to me of Love (Sievier); Somehow (Hackforth). **1.30 a.m.,** Vocal Duets; All Change for Happiness (Johns); I'm just a dancing Sweetheart (de Rose); I'm just wearing out my Heart for you (Layton); Selection from White Horse Inn (Benatzky); In the Mountains of the Pine (Tait); Parking in the Moonlight (Tobias); Make yourself a Happiness Pie (Perkins). **2.0,** Dance Music by the Ibcolians; Somebody stole my Gal; So ashamed; Here's hoping; Southern Serenade; The wise old Owl said "Hoo"; What more can I ask?; Love Tales; Brighter than the Sun; Strange Interlude; Me minus you; I guess I'll have to change my Plans; Same old Moon; Brother, can you spare a Dime?; I'll never have to dream again. **2.57,** I.B.C. Good-night Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—**4.30 p.m.,** See **Langenberg.** **5.50,** Economic Notes. **6.0,** Talk: Musical Education To-day. **6.25,** Dialogue between Two Soldiers: 117 at Verdun. **6.50,** Time, Programme Announcements, Weather and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0 to 10.0,** See **Stuttgart.** **10.0,** The German Almanac. **10.15,** Time, News, Weather and Sports Notes. **10.50,** See **Stuttgart. 12 Midnight** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.** **5.55 p.m.,** Review of New Books. **6.20,** Hans Henning v. Grote reads from his own Works. **6.45,** Frankfort Exchange and Hamburg Egg Market Prices. **6.50,** Weather Report. **7.0,** Transmission for all German Stations. **8.0,** Concert by the Station Chamber Orchestra and Male Voice Quartet, conducted by Gerhrad Maasz. Soloists: Richard Germer (Songs to the Lute), Gerhard Gregor (Accordion) and Ernst Schlörmann (Month Organ). Potpourri, Viennese Folk Music (Komzak); Folk Song Potpourri for Quartet, with Mouth Organ obbligato (Ostermann); Accordion Solo: Viennese Waltz (Lakay); Songs to the Lute: (a) Bootsmann (Jansson), (b) Bruder Liederlich (Ruch), (c) Waltz, Juchheissa (Abt); Märchen und Volkslied (Komzak); Accordion Solo: Intermezzo (Kempinski); Songs to the Lute: (a) Die Vogelkantate (Kothe), (b) Das ästhetische Wiesel (Meyer-Steineg), (c) Ein Lied im Lehnstuhl (Erdlen); Folk Song and Waltz Potpourri (Egg). **9.0,** News. **9.10,** Hermann—Bismarck—Hitler—a Trilogy (Hans Bodenstedt). **10.10,** Time and News. **10.20,** Topical Talk. **10.30** (from **Hanover**), Orchestral Concert, conducted by Otto Ebel von Sosen: Overture, Ali Baba (Cherubini); Selection from Hansel and Gretel (Humperdinck); Musik am Abend (Graener); Ballet Music from Rienzi (Wagner); Fantasia, From Gluck to Wagner (Schreiner); Overture, Die Felsenmühle (Reissiger); Die Mär vom tapferen Schneiderlein (Zimmer); Selection from Gasparone (Millöcker).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.**—**11.30 a.m.,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Prinz Eitel-Friedrich-Marsch (Blankenburg); Overture, Die Landstreicher (Ziehrer); Eleven Variations on a Carnival in Venice (Pitzau); Träume auf dem Ozean (Gmugl); Selection from Der Kuhreigen (Kienzl); Ballet Music from Czar and Carpenter (Lortzing); Russian Rhapsody (Börschel); Overture, Martha (Flotow). **1.5 p.m.,** Gramophone Concert of Light Music. In the interval at **1.20,** News. **2.30,** Programme arranged by the Post Office, with Gramophone Records. **3.0,** Agricultural Prices and Exchange Rates. **3.30,** Programme for Children. **4.0,** Concert by the Königsberg Opera House Orchestra, conducted by Ludwig Leschetizky: Overture, Czar and Carpenter (Lortzing); Prayer from Das höllische Gold (Bittner); Selection from The Jewels of the Madonna (Wolf-Ferrari); Petite Suite (Bizet); Selection from La Sonnambula (Bellini); Valse triste (Sibelius); Capriccio (Grädener); Hungarian Dances Nos. 5 and 6 (Brahms); Waltz from Gipsy Love (Lehár); Spanish March, Hispania (Dreyer); Waltz, Children of Spring (Waldteufel). **5.45,** Book Review. **6.15,** Agricultural Prices. **6.25,** Talk for Workers. **6.50,** Weather Report. **7.0,** Transmission for all German Stations from **Langenberg. 8.0,** Weather and News. **8.5** (from **Danzig**), The St. John Passion (Bach), by the Danzig Teachers' Choral Society and the Danzig Municipal Theatre Orchestra, conducted by Dr. Ludwig Kraus. Soloists: Henny Wolf (Soprano), Max Stieber-Walter (Tenor), Max Begemann (Bass), and Karl Kähler (Bass, Arias and Recitations). **10.5,** Weather, News, and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**).—Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.10 a.m.,** Chamber Music by the Haydn Quartet. String Quartet in A, Op. 41, No. 3 (Schumann). **11.40,** Talk. **12.10 p.m.,** Chamber Music (contd.). String Quartet in B Flat, Op. 18, No. 6 (Beethoven). **12.40,** Time Signal. **12.41,** Concert by the Wireless Orchestra, conducted by Nico Treep. Overture, Si j'étais roi (Adam); Suite, Scènes napolitaines (Massenet); Selection from Il Trovatore (Verdi); Valse triste (Sibelius); Concertina Duets by The Two Hodlars; Overture, Ten Maids and no Man (Suppé); The Blue Pavilion (Armandola); Serenade (Widor); Aubade à musette (Popy); Jota e Tripoli (Lacôme); Pasodoble, Madrid (Speyer); Variations in the Style of Famous Composers on's komm ein Vogel geflogen (arr. Ochs); Selection from Wild Violets (Stolz). **2.55 to 3.10,** Interval. **3.10,** Light Music on Gramophone Records. **3.40,** Talk on Fashions. **4.40,** Pianoforte Recital by Betsy van Praag. **5.10,** Concert by a Children's Choir. **5.40,** Programme for Children. **6.10,** Talk. **6.40,** Light Music on Gramophone Records. **7.40,** An Electoral Address. **8.10,** English Lesson. **8.40,** Time Signal, Weather Forecast, and News Bulletin. **8.45,** Variety Programme with Music by Kovacs Lajos and his Dance Orchestra and the Wireless Orchestra, conducted by Nico Treep. Items by the Paris Garden Hawaiians and Louis Noiret in his Repertoire. **11.10,** Concert by Cornelius Codolban and his Orchestra, relayed from the Carlton Hotel, Amsterdam. **11.40,** News. **11.50,** Popular Music on Gramophone Records. **12.40 a.m. (Wednesday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**12.55 p.m.** till Close Down, Programme of the Catholic Radio Society (K.R.O.). **12.55 p.m.,** Concert by the K.R.O. Boys, conducted by P. Lustenhouwer: Russian Intermezzo (Leuschner); Puppenwalzer (Bayer); Nachklänge aus dem Zillerthal (Hock); Aus Offenbachs Musterkoffer (Urbach); Meditation from Thäis (Massenet); Gramophone Records; Der Lenz ist da (Hilduch); Stolz Potpourri (Dostal); Souvenir de Mona Lisa (Schebek); Celeste Solo; Finale. **2.25 to 2.40,** Interval. **2.40,** Programme for Women. **3.40,** Popular Music on Gramophone Records. **4.0,** Recitations. **4.20,** Song Recital by Mlle. J. Kloosterhuis. In an interval at **4.40,** Light Music on Gramophone Records. **5.20,** Recitations. **5.40,** Concert by the K.R.O. Orchestra, conducted by J. Gerritsen: Overture, Le jeune Henri (Méhul) The Guildford Suite No. 2 (Dunhill); Concert Waltz, Op. 47 (Glazunov). **6.10,** Agricultural Talk. **6.40,** Orchestral Concert (contd.): Overture, Undine (Lortzing); Selection from Monna Vanna (Février); Valse triste (Sibelius); Glinka Juwelen (Urbach). **7.25,** Popular Music on Gramophone Records. **7.40,** Orchestral Concert (contd.): Overture, Eine Nacht in Venedig (Joh. Strauss); Soirée d'été (Waldteufel); Selection from La mascotte (Audran). **8.10,** Police Report. **8.25,** Electioneering Address. **8.55,** Sacred Music and Meditation on the Passion. **10.10,** News. **10.15,** The St. John Passion—Oratorio (Vranken), by the Palestrina Choir and Soloists. **11.40,** News. **11.45,** Popular Music on Gramophone Records. **12.40 a.m. (Wednesday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**8.35 p.m.,** Radio Concert. **9.0,** Weather and News. **9.15,** Radio Concert. **9.45,** Dance Music from the Palais de la Méditerranée. **12 Midnight to 1.0 a.m. (Wednesday),** Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight,** I.B.C. Variety Hour. **12.57 a.m.,** I.B.C. Good-night Melody. **1.0 a.m.** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**7.15 p.m.,** Announcements and Light Music on Gramophone Records. **7.25,** Sports Talk. **7.30** till Close Down, See **Warsaw.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**11.20 a.m.,** Gramophone Concert. Overture, Oberon (Weber); Ballet Music from Rosamund (Schubert); Arabesques on Themes from The Blue Danube (Joh. Strauss); Two Songs for Baritone: (a) Frühling am Rhein (Höser), (b) Du Vaterland (Emmel); Selection from Prince Methuselah (Joh. Strauss); Mussinan-Marsch (Carl). **12 Noon,** Concert from **Stuttgart. 12.50 p.m.,** Weather, Time and News. **1.0,** Concert by the Cologne Concert Orchestra, conducted by Erich Walter, relayed from the Messehalle. In the interval at **2.0,** News. **2.30,** Sponsored Programme, with Gramophone Records. **3.30,** Economic Notes and Time Signal. **3.50,** Programme for Children. **4.15,** Educational Talk. **4.30,** Concert by the Station String Quartet. Soloist: Melanie Birkenfeld (Soprano). Quartet Movement (Hans Haass); Three Songs (Ehrenberg): (a) Schliesse mir die Augen beide, (b) Im Walde, (c) Frühlingsnahen: Three Songs (Keiper): (a) Bei deinem Lächeln, (b) Abendfrieden, (c) Sternentrost; String Quartet (Donisch). **5.45,** Reading: Würzburg (Karl Storck) **6.5,** Talk on Questions of German Agriculture. **6.25,** Italian Lesson. **6.50,** Weather, Time, Economic and Sports Notes. **7.0,** Transmission for all German Stations—Symphony Concert by the Station Orchestra, conducted by Buschkötter. Fanfaren (Wagner); Brandenburg Concerto, No. 3, in F (Bach); Siegfried Idyll (Wagner); Leonora Overture (Beethoven); Also sprach Zarathustra (Strauss). **8.0,** First General News. **8.5,** William Tell—Play (Schiller), with Music by Hans Avril. **10.20,** News, Sports Notes, and Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**12 Noon,** Gramophone Concert: Choir: (a) Folk Song, Ein Blümlein auserlesen, (b) In stiller Nacht (Brahms), (c) Sandmännchen (Brahms); Movement from the Sixth Symphony (Beethoven); Choir: (a) Ach wie' ist's möglich dann, (b) Die drei Röselein, (c) Muss i denn, (d) Annchen von Tharau (Friedrich Silcher); Serenade from the String Quartet in F (Haydn); Old Dutch Thanksgiving—for Choir and Orchestra; Choral Pieces: (a) Es ist so still geworden, (b) Vom alten Fritz (Siegfried Ochs). **1.0 p.m.,** News, Weather and Time. **1.15,** Soloist Concert on Gramophone Records: Allemande, Courante and Sarabande from the Partita in D Minor (Bach); Minuet (Beethoven); Fantasia in C Minor (Mozart); Abendlied (Schumann); Adagio from the Concerto in A Minor (Schumann); Allegretto (Boccherini); Rondo from the Sonata in E Minor, Op. 98 (Beethoven); Toccata in D Minor (Reger). Exchange after the Concert. **2.0 to 2.15,** Talk for the Unemployed. **3.0,** Review of Books for Young People. **3.35,** Industrial Notes. **4.0,** Talk: History of the Administration of Justice. **4.30,** Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber. Soloist: Friedbert Sammler (Harpsichord); Overture in D (Haydn); Ballet Suite No. 1 (Gluck); Overture, Bourrée and Hornpipe from the Concerto in F for Orchestra, No. 25 (Händel); Overture, Die Weihe des Hauses (Beethoven). **5.30 to 5.35,** Weather and Time. **5.50,** Exchange Quotations. **6.0,** Talk for Women: A Trip to Monte Carlo. **6.25,** French Lesson. **6.45,** Programme to be announced. **7.0,** Transmission for all German Stations—Concert from **Langenberg. 8.0,** The German Mind and German Soil—a Sequence with Extracts from Hesse, Danthendey, Schnack and Burte (arr. Siegfried Wisch). **9.0,** Economic Notes. **9.10,** Chamber Music in Old Vienna—Concert: Sonatina (Beethoven); Minuet from the Sonata, Op. 12 (Johann B. Molitor); Dornbacher Ländler (Josef Lanner); Dance, D'Schwomma (Weidinger) Waltz (Mauro Giuliani); Ländlerischer Tanz (Mozart); Ländlerischer Tanz (Beethoven); Schellerl-Tanz (Schrammel). **9.40,** Concert by the Vienna Guitar Chamber Trio: Trio Suite for Violin, Viola and Guitar (Franz Hasenöhrl); Two Pieces (Roderich Buss): (a) Biedermeiergavotte No. 2, (b) Serenade; Three Dances (Franz Salmhofer): (a) Polonaise, (b) Valse lente, (c) Geister-Trott. **10.25,** News, followed by Variety Programme. **12 Midnight,** Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**5.30 p.m.,** Quintet Concert. **6.30,** German Lesson. **7.0,** Talk on Economics. **7.30,** Talk: Contemporary Heroes. **8.0,** Programme relayed from **Belgrade, 697 kc/s, 430.4 metres. 10.0,** Time, News, and Concert of Light Music.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South East. **8.30,** Orchestral and Choral Concert, conducted by Jean Witkowsky. Soloist: M. Trillat (Pianoforte): First Suite from Nanouna (Lalo); Sarabande (Ferroud); Le Rouet d'Omphale (Saint-Saëns); Variations for Pianoforte and Orchestra (Franck); Ballet Music (Rameau); Extracts from The Mastersingers (Wagner); Two Choruses from The Messiah (Handel).

MADRID

ARANJUEZ (EAQ); 9,860 kc/s, 30.43 metres; 20 kW.—11.30 p.m., Popular Concert. **11.45,** Radio Chronicle. **12 Midnight,** Popular Concert (contd.). **12.30 a.m. (Wednesday),** Talk. **12.40,** Light Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Radio Journal, and Request Gramophone Concert. **8.30** (in an interval), Talk by Joaquín España Cantos. **9.15,** News Bulletin and Political Review. **9.30 to 10.0,** Interval. **10.0,** Linguaphone English Lesson. **10.30,** Chimes, Time Signal, Political Review, and Trio Concert of Chamber Music by M. Zabaleta (Harp), M. Garijo (Flute), and M. Gandia (Cello). **12.45 a.m. (Wednesday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by J. Plichta. **5.10,** See **Prague. 5.50,** See **Brno. 6.0,** Light Music on Gramophone Records. **6.15,** See **Prague. 6.25,** See **Brno. 7.0,** See **Prague. 7.10,** Talk on Cancer. **7.25,** See **Prague. 10.15,** Popular Music on Gramophone Records. **11.0** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

553 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—**4.35 p.m.** (from **Nürnberg**), Concert by the Nazi Symphony Orchestra, conducted by Willi Böhm. Soloist: Martha Friess (Soprano). **5.35,** The Gold-Beaters of Schwabach—a Radio Report. **6.5,** Talk: What does a University Education cost to-day? **6.25,** Talk: The Economic Policy of the National Socialists. **6.45,** Time, Weather and Agricultural Notes. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Charming Trifles—Concert by the Station Orchestra, Käthe Lange-Schubert (Soprano), Josef Schindler (Tenor), Max Hartmann (Baritone) and Hugo Reker (Violin). **8.50,** Promise of Easter—Radio Sequence by the Station Chamber Orchestra and Two Speaking Voices. **9.20,** The Third Symphony in D Minor (Bruckner), by the Station Orchestra, conducted by Dr. Rudolf Siegel. **10.20,** Time, Weather, News and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden,**

671 kc/s, 447.1 metres; Poregrund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres.—5.0 p.m., Orchestral concert. Relayed from the Grand Hotel. Conductor: Hans Bache: Overture, Heimkehr aus der Fremde (Mendelssohn); Waltzes (Brahms); Selection from The Count of Luxembourg (Lehar); Berceuse and Rococo (Burmester); Slav Dance No. 4 (Dvorak). 6.0, Two Talks for Housewives. 6.45, Duets on Two Pianofortes. 7.0, Announcements, Weather and News. 7.30, Talk: The Norwegian Constitution compared with those of foreign countries. 8.0, Time Signal. 8.1, Concert of Opera Music by the Station Orchestra, conducted by Hugo Kramm: March from Alceste (Gluck); Selection from: (a) Figaro (Mozart), (b) Fidelio (Beethoven), (c) Martha (Flotow), (d) Alessandro Stradella (Flotow); Overture, Der Waffenschmied (Lortzing); Selection from The Barber of Bagdad (Cornelius); The Sailors' Chorus from The Flying Dutchman (Wagner); Walter's Prize Song (Wagner); Overture, The Mastersingers (Wagner). 9.10, Reading. Weather and News. 10.0, Topical Talk. 10.15, Concert by a Women's Vocal Quintet. 10.45 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc s, 537.6 metres; 3 kW.—8.0 p.m., Dopolavoro Notes, Tourist Report, Agricultural Notes, and Giornale Radio. 8.20, Popular Music on Gramophone Records. In an interval at 8.30, Time and Announcements. 8.45, Relay of an Opera. In the interval, Talk. 10.55, News.

PARIS

EIFFEL TOWER (FLE), 207.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on 2,650 metres) at 10.26 a.m. and 11.26 p.m. (Preliminary and 6-dot Signals).—6.45 p.m., Theatre Review. 7.0, Le Journal Parlé. 8.20, Weather Report. 8.30, See **Lyons-la-Doua.**

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—6.45 p.m., Journal Parlé. 7.0, Sponsored Concert with Gramophone Records. 8.0, Film Review. 8.5, Talk on the Circus. 8.15, Interval. 8.30, Concert by the Station Symphony Orchestra and Vocal Quartet; Soloist: Maurice Bèché (Pianoforte): Overture, The Magic Flute (Mozart); Pianoforte Solo, Mephisto-Walzer (Liszt); Unfinished Symphony (Borodin); Peer Gynt Suite (Grieg); Ballet Music from Rosamunde (Schubert); Pavane (Fauré); Tone Poem, Kikimora (Liadov); a Night on the Bare Mountain (Mussorgsky); Invitation to the Waltz (Weber-Berlioz). In the intervals, Eighteenth Century Wedding Songs by the Vocal Quartet. 10.30, News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Light Music on Gramophone Records. 8.0, Press Review and Weather. 12 Noon, Concert by the Krettly Orchestra: Fifth Sonata for Two Violins (Aimé); Symphony (Mozart); Overture, Coriolanus (Beethoven); First Trio (Mendelssohn); Contes de la veillée (Godard); Concertino for Flute (Chaminade); Selection from Pelléas et Mélisande (Fauré); Ballet Music from La Korrigane (Widor). In the interval at 1.0 p.m., Exchange, News and Weather, and at 1.30, Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.30, Variety Music on Gramophone Records. 6.50, Theatre Review. 7.5, Talk on Art; Masterpieces in the Musée Carnavalet. 7.20, Concert by the Krettly Orchestra: Overture, Morning, Noon and Night (Suppé); Roses of Picardy (Wood); Suite on Popular Caucasian Airs (Leoni); Chant sans paroles (Tchaikovsky); Russian Dance (Moszkowski). 7.45, Review of the Anglo-Saxon Press. 8.0, Variety Programme arranged by Paul Weill. 8.30, News and Weather. 8.40 Review by Pierre Seize. 8.45, Gramophone Records: Song and Waltz from The Desert Song (Romberg); Indian Love Call from Rose Marie (Friml); Selection from Madame Pompadour (Fall). 9.0, Oh Papa—Operetta in Three Acts (Yvain), relayed from the Théâtre des Nouveautés.

PITTSBURGH

WESTINGHOUSE ELECTRIC, KDKA, 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK on 48.86 metres and 25.27 metres.—10.0 p.m.,** Work-a-day Thoughts. 10.5, Business News. 10.15, Selma Brandt (Pianist). 10.30, Weather Report. 10.31, Market Reports. 10.45, Johnny Muskrat. 10.50, David Lawrence Dispatch. 10.58, Programme Announcements. 11.0, Programme to be Announced. 11.15 to 12.15 a.m. (Wednesday), New York Relay. 11.15, Dick Daring. 11.30, The Singing Lady. 11.45, Little Orphan Annie. 12 Midnight, Booth Tarkington's Maude and Cousin Bill. 12.15 a.m., Time Signal. 12.16, Weather Report. 12.17, Teaberry Sports Review. 12.22, Press News Reeler. 12.29, Temperature Report. 12.30, KDKA Orchestra. 12.45 to 5.0, New York Relay. 12.45, To-day's News by Lowell Thomas. 1.0, Pepsodent Amos 'n' Andy. 1.15, National Advisory Council on Radio in Education—Inter-Allied Debts. 1.45, The Townsend Murder Mystery. 2.0, Eno Crime Clues. 2.30, Time Signal and Adventures in Health. 2.45, Southern Singers. 3.0, Household Musical Memories. 3.30, Willard Robison's Deep River Orchestra. 4.0, The Tune Detective. 4.15, Vic and Sade. 4.30, Homay Bailey and Orchestra. 4.45, Prof. Jack McLallen, Sara, and Sassafras. 5.0, Time Signal. 5.1, Teaberry Sport Review. 5.11, Temperature Report. 5.12, Weather Report. 5.15, Press Last Minute News Flashes. 5.20, Smith Ballew and his Orchestra. 5.58, KDKA Artist Bulletin. 6.0, Cotton Club Orchestra, from New York. 6.30, Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—4.10 p.m., See **Moravská-Ostrava.** 5.10, Talk on Economics. 5.20, Czech Lesson for Germans and German Lesson for Czechs. 5.50, Light Music on Gramophone Records. 6.5, Market Prices. 6.15, Talk for Workers. 6.25, News in German. 6.30, German Transmission: Songs from Operetta by Lissy Helling-Höllering. 7.0, Chimes. 7.1, News. 7.10, Talk by Dr. Stephan Osusky, Czechoslovak Minister in Paris. 7.25, A Radio Play in Nine Scenes (Grunela). 7.55, Different Forms of Orchestral Music—Concert with Explanatory Notes by Karel Jirak. 8.30, Concerto for Pianoforte and Orchestra (Prokofiev) by the Station Orchestra, conducted by Jeremias; Soloist: The Composer. 9.0, Time Signal. 9.1, Concert by the Czech Quartet: First Springs, Op. 5, for String Quintet and Pianoforte, Op. 5 (Stepan), with the Composer at the Pianoforte; String Quintet, Op. 1 (Hlobil). 10.0, Time Signal. 10.1, News Bulletin. 10.15, Variety Music on Gramophone Records. 11.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc s, 403 metres; 25 kW; **Lausanne,** 442 kc s, 680 metres; and **Geneva,** 395 kc s, 760 metres.—6.0 p.m., (from **Lausanne**). Talk: The Meaning of Christian Names. 6.30 (from **Geneva**), English Lesson. 7.0 (from **Geneva**), Weather and News. 7.20 (from **Geneva**), Answers to Correspondence. 7.30 (from **Geneva**), Newly-released Gramophone Records. 8.0 (from **Lausanne**), Talk on Music. 8.15 (from **Lausanne**), Talk: The Municipal Theatre at Lausanne. 8.30 (from **Lausanne**), Figaro—Opéra Comique in Four Acts (Mozart). In the interval, News and Weather. 11.45 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—3.30 p.m., Weather Report. 9.40, Musical Programme and Announcements. 10.0, Chimes. 10.2, News Bulletin. 10.30, Reading. 11.0, Pianoforte Recital by Emil Thoroddson. 11.15, Recitations. 11.35, Quartet in G (Haydn) on Gramophone Records.

RIGA

572 kc/s, 525 metres; 15 kW.—4.0 p.m., Wind Instrument Concert: Overture, Flotte Bursche (Suppé); Morning in Finland (Malcew); Sicilienne (Jessel); Operetta Melodies (Stolz); The Mill (Jensen); Selection from Carmen (Bizet); Melody (Pikert); Perpetuum mobile (Blon). 5.0, Latvian Lesson. 5.30, Old Songs and Stories. 6.0, French Lesson. 6.30, Talk on Philosophy. 7.0, Weather Report. 7.5, Rimsky-Korsakov Concert by the Radio Orchestra, conducted by Prof. Medins: Overture, The Czar's Bride; Suite from The Snow Maiden; Hymn to the Sun; Overture, A Night in May; Spanish Caprice. 8.0, News. 8.20, Popular Latvian Songs. 8.40, Concert of Marches and Waltzes. 9.30, Dance Music. 10.30 (approx.). Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO; 680 kc s, 441 metres; 50 kW. Relayed by **Naples,** 941 kc s, 319 metres; and **2RO,** 11,810 kc s, 25.4 metres.—1.0 p.m., Time and Announcements. 1.2 to 2.15, Orchestral Concert. In the interval from 1.30 to 1.45, Giornale Radio and Exchange. 4.45, Children's Radio Review. 5.10, Announcements. 5.30 to 6.15, Orchestral Concert. 7.0, Shipping and Sports Notes. 7.10, Atmospheric Signals. 7.20, Giornale Radio, Agricultural Report, and Dopolavoro Notes. 8.0, Time and Announcements. 8.2, Talk: The Stars. 8.15, Pianoforte Recital by Germano Arnaldi: Etude brillante (Chopin); On the High Seas (Bloch); La Boîte à Musique (de Sévérac); Toccata (Boëllmann). 8.30, Sports Notes and Tourist Report. 8.45, Relay of an Opera, or Studio Concert. In the intervals: Talk on Art, and Literary Notes. 10.55, News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.—1.0 a.m. (Wednesday),** General Electric Programme. 1.15, Stock Reports. 1.30, Johnny Albright (Crooner). 1.45 to 4.0, New York Relay. 1.45, The Goldbergs—Comedy Sketch. 2.0, Blackstone Plantation. 2.30, Wayne King's Orchestra. 3.0, Ben Bernie's Blue Ribbon Orchestra. 3.30, Ed Wynn and the Fire Chief Orchestra. 4.0, Lucky Strike Hour, from New York, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc s, 459 metres; 60 kW.: **Basle,** 1,229 kc s, 244.1 metres; and **Berne,** 1,220 kc s, 245.9 metres.—12.28 p.m., Time Signal from Neuchâtel Observatory. 12.30, Weather and News. 12.40 (from **Zürich**), Concert of Light Music by the Radio Orchestra. 1.35, Weather and Exchange. 1.40 to 3.30, Interval. 3.30 (from **Zürich**), Concert by the Small Station Orchestra. 4.0 (from **Berne**). Light Music on Gramophone Records. 5.0 (from **Berne**), Waltz Music on Gramophone Records. 5.30, Weather. 5.35 to 6.30, Interval. 6.30 (from **Berne**), Talk: Anti-Gas Precautions for the Civilian Population. 7.0, Time and Weather. 7.1 (from **Berne**), Notes on the Broadcasts for Schools. 7.15 (from **Berne**), A Humorous Report from an Easter Egg Factory. 7.50, Introductory Talk to the following Relay. 8.0 (from **Berne**), Manon Lescaut—Opera in Four Acts (Puccini), relayed from the Municipal Theatre. In an interval at 9.45 (approx.), Weather and News. 11.0 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden,** 244 kc/s, 1,229.5 metres; **Göteborg,** 932 kc/s, 322 metres; **Hörby,** 1,166 kc/s, 257 metres; **Motala,** 221.5 kc/s, 1,354.4 metres; **Ostersund,** 389 kc/s, 770 metres; and **Sundsvall,** 554 kc/s, 542 metres.—5.5 p.m., Programme for Children. 5.45, Light Music on Gramophone Records. 6.45, Elementary French Lesson, relayed from **Malmö,** 1,301 kc/s, 231 metres. 7.15, Weather and News. 7.30, Talk: The League of Nations. 8.0, Concert by the Göteborg Chamber Orchestra. Conductor: Tor Mann. Soloist: Rolf Johansson (Oboe). Suite champêtre, Op. 98b, for String Orchestra (Sibelius); Suite, Op. 13, for Oboe and String Orchestra (Henriques); Four Old Dance Pieces for String Orchestra (Niemann); Three Pieces for String Orchestra (Juon). 8.45, Literary Review. 9.15, Variety Programme. 10.0, Max Reger Violin and Pianoforte Recital by Henri Marteau and N. Christiansen, relayed from **Malmö**; Sonata, Op. 91, No. 2, in D for Violin; Sonata in F Sharp Minor, Op. 84, for Violin and Pianoforte. 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.30 a.m., Gramophone Concert of Variety Music. 12 Noon, Orchestral Concert, conducted by M. de Villers. Part I: Francis Thomé. Orchestral Suite, Bal à la cour; Sarabande; Simple aveu; Guitare; Suite carnavalesque. Part II: Gustav Charpentier. Impressions d'Italie. Selection from Louise. In the intervals at 12.45 p.m., News, and at 1.0, Time and Exchange. 2.0 to 4.45, Interval. 4.45, Talk in French: Greater France. 5.0, Concert of Jazz Music, conducted by Roskam. 6.0, History Talk in French. 6.15, Topical Talk in French. 6.30, Viola and Pianoforte Recital by Gaston Stolz and Max Pogoda: Sonata No. 4 for Viola and Pianoforte (Corelli); Concerto in B Minor for Viola and Pianoforte (Handel); Pieces for Pianoforte; Suite for Viola and Pianoforte (Jongen). 7.30, Time and News. 7.45, Gramophone Concert: In a Persian Market (Ketelbey); In a Monastery Garden (Ketelbey); Song from Chansons de Miarka (Georges); Air from Lakmé (Delibes); Pieces (Falla): (a) Nana, (b) Seguedilla, (c) Jota: Les Myrthes sont flétris (Fauré); Bonsoir, Madame la Lune (Marinier); Elegy (Glinka). 8.15, Press Review in German, and Lottery Results. 8.30, See **Lyons.** In the Interval, Press Review in French. 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc s, 360.5 metres; 60 kW.; and **Freiburg,** 527 kc s, 570 metres.—12 Noon (from **Freiburg**). Concert by the Freiburg Concert Orchestra, conducted by Pfaff: Pavane und Gagliarde (Hausmann-Staden); Musette, Courante, Sarabande, and Gigue (Händel); German Dances (Schubert); Tarantella (Rossini); Saltarello (Rossini); Andalouse (Massenet); Aragonaise (Massenet); Navarraise (Massenet); Selection (Joh. Strauss): (a) Czardas, (b) Polka, (c) Annen-Polka, (d) Waltz. 1.15 p.m., Time, News, Weather, and Programme Announcements. 1.30, Frieda Hempel, Galli Curci, and Maria Ivogün, on Gramophone Records. 2.0, Concert arranged by the Post Office. 2.30, Advanced English Lesson. 3.0 to 3.30, Interval. 3.30, Horticultural Talk. 4.0, Talk: The First Day at School. 4.30, See **Langenberg.** 5.50, Time, Weather, and Agricultural Notes. 6.0, Talk. 6.25, Talk on Libraries. 6.50, Time and News. 7.0, Transmission for all German Stations, relayed from **Langenberg.** 8.0, Swabian Idylls. 8.45, Concert of Opera Music by the Stuttgart Philharmonic Orchestra, conducted by Ferdinand Drost: Overture, Figaro (Mozart); Overture, Oberon (Weber); Overture, Der Wildschütz (Lortzing); Overture, The Merry Wives of Windsor (Nicolai); Overture, Alessandro Stradella (Flotow); Prelude to Act III of Lohengrin (Wagner); The Ride of the Witches, from Hansel and Gretel (Humperdinck); Entr'acte Music from An allem ist Hütchen schuld (S. Wagner); Waltz from Der Rosenkavalier (R. Strauss). 10.0, Time, News, Weather, and Programme Announcements. 10.20 (from **Karlsruhe**), Oboe and Pianoforte Recital by Roland Weiler and Theo Hollinger; Sonatine (Rydanult); Two Songs (Schumann); Variations on a Theme (Weismann). 10.50, Concert by the Stuttgart Philharmonic Dance Orchestra, with Otto Müller-Neutz (Baritone). 12 Midnight, Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc s, 385 metres; 8 kW.—6.15 p.m., Popular Songs. 6.30, Concerto in C for Orchestra (Renié). 6.45, Opera Music: Aria from The Tales of Hoffmann (Offenbach); L'indifférent, from Schéhérazade (Ravel); Aria from The Twilight of the Gods (Wagner); Aria from Figaro (Mozart). 7.0, Accordion Music. 7.15, News and Racing Results. 7.25, Local News. 7.30, Sound Film Music. 8.0, Orchestral Music. 8.15, Popular Songs. 8.30, Military Music. 8.45, Opéra-Comique Songs: Comme une pâle fleur, from Hamlet (Thomas); Pourquoi, from Lakmé (Delibes); Près des remparts de Seville, from Carmen (Bizet). 9.0, Concert by the Toulouse Symphony Orchestra, conducted by M. Tartanac: Overture, La Dame blanche (Boieldieu); Feuillets d'Album (Levadé); First Arabesque (Debussy); Li-Tsin (Joncières); Ländler (Tartanac); Waltz, Pomona (Waldteufel); Selection from Phi-Phi (Christiné). In the interval, Light Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco. 11.0, Argentine Music. 11.15, Popular Songs. 11.30 to 12 Midnight, Programme in English by the I.B.C., W. Brown-Constable announcing. 11.30, Duets: Selection from On with the Show; My Heart is where the Mohawk flows; When it's Springtime in the Rockies; Gold Diggers of Broadway; Sophie Tucker's Songs; Little Old Church in the Valley; Apple Blossom Time; Selection, Say it with Songs. 11.57, I.B.C. Good-night Melody. 12 Midnight, News and Weather. 12.5 a.m. (Wednesday), Operetta Music: Selection from The Gipsy Princess (Kálmán); Selection from The Geisha (Jones). 1.15, Accordion Solos. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—5.15 p.m. till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc s, 273.7 metres; 7 kW. Relayed by **Milan,** 905 kc/s, 331.5 metres; **Genoa,** 959 kc s, 312.8 metres; and **Florence,** 599 kc s, 500.8 metres.—5.15 to 6.0 p.m., Dance Music, from the Savoia, Milan. 6.35, Giornale Radio, Agricultural and Dopolavoro Notes. 7.0, Time, and Gramophone Records of Light Music. 7.20, Giornale Radio. 7.45, Report of the Royal Geographical Society, followed by Gramophone Records of Light Music. 8.0, Announcements, Giornale Radio, Weather, and Gramophone Records (contd.). 9.30, Talk. 8.45, Variety. 9.45, Talk. 10.0, Dance Music. 11.0 (approx.). Close Down.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and 5,969 kc/s, 50.26 metres (Evening); 10 kW. —11.0 to 11.15 a.m., Religious Information in English. 8.0 to 8.15 p.m., Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW.; and **Graz,** 852 kc/s, 352.1 metres; **Innsbruck,** 1,058 kc/s, 283 metres; and **Klagenfurt,** 662 kc/s, 453.2 metres; **Linz,** 1,220 kc/s, 245.9 metres; and **Salzburg,** 1,373 kc/s, 218.5 metres.—7.20 p.m., Time, Weather and Programme Announcements. 7.30, Readings, Bruckner-Novelle (Rudolf List). 8.0, A Relay (to be announced). 10.0, News and Weather. 10.15, Dance Music from the Café de Paris.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.57 a.m., Time Signal and Fanfare from St. Mary's Church, Cracow. 12.5 p.m., Programme Announcements. 12.10, Light Music on Gramophone Records. 1.20, Weather Forecast. 1.25 to 3.10, Interval. 3.10, Announcements. 3.15, Economic Notes. 3.25, Aviation Report and Anti-Gas Drill. 3.30, Announcements. 3.35, Book Review. 3.50, Light Music on Gramophone Records. 4.20, Talk: The Union of Italy. 4.40, Talk. 5.0, Symphony Concert by the Warsaw Philharmonic Orchestra, conducted by Fritz Mahler: Serenade in D, No. 3 (Mozart); Tragic Overture (Brahms). In the interval, Announcements. 5.55, Programme Announcements. 6.0, Talk: Poland To-day. 6.20, News. 6.25, Popular Concert relayed from the Café Gastronomia. 7.0, Miscellaneous Items. 7.20, Agricultural Report. 7.30, Talk: The Future of Opera. 7.45, Radio Journal. 8.0, Turandot—Opera (Puccini), relayed from the Grand Theatre. In the intervals, Sports Notes, Radio Journal, and Recitation. 11.10, Aviation Weather Report and Police Notes.

ZURICH.—See **Schweizerischer Landessender.**

Foreign programmes continued on page XIII.

PROGRAMMES CONTINUED

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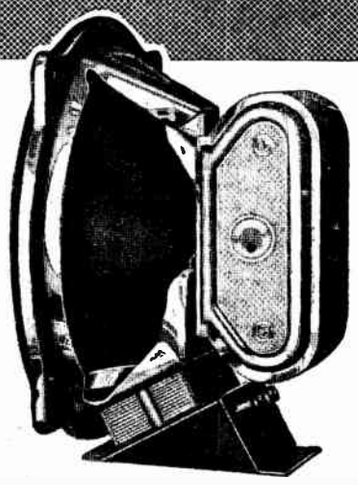

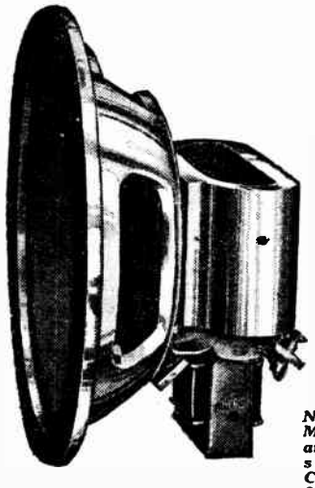

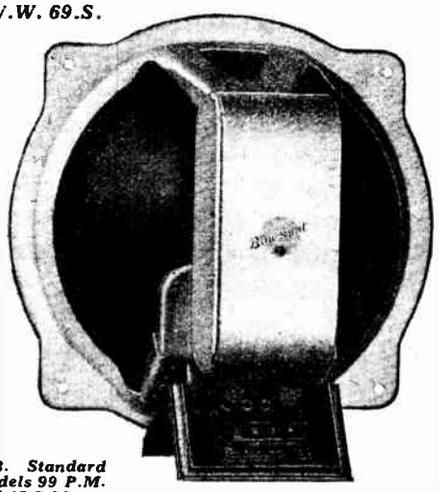

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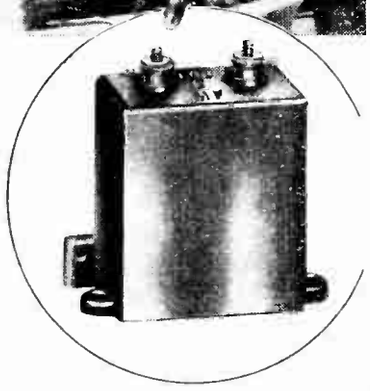

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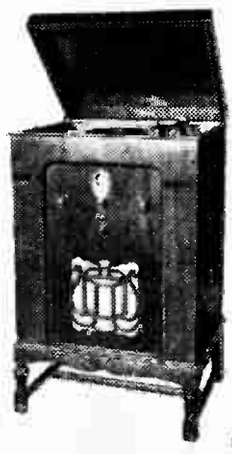

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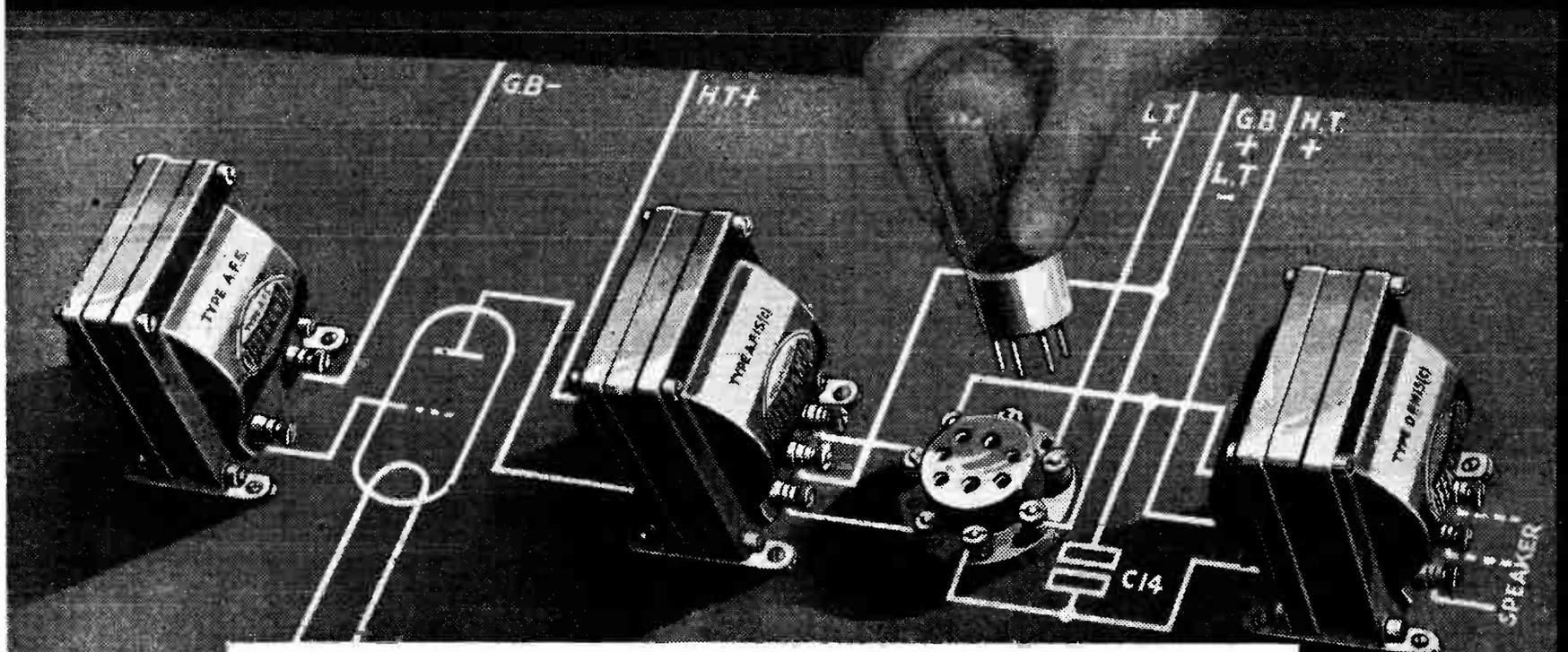

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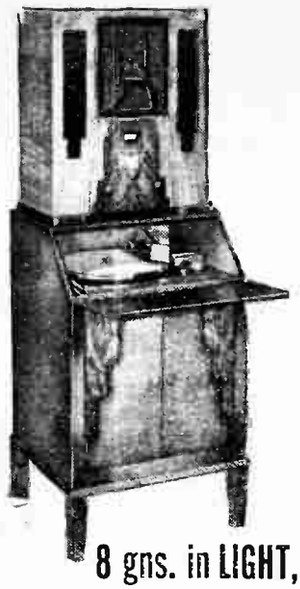

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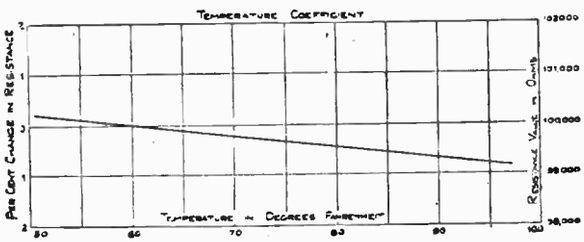

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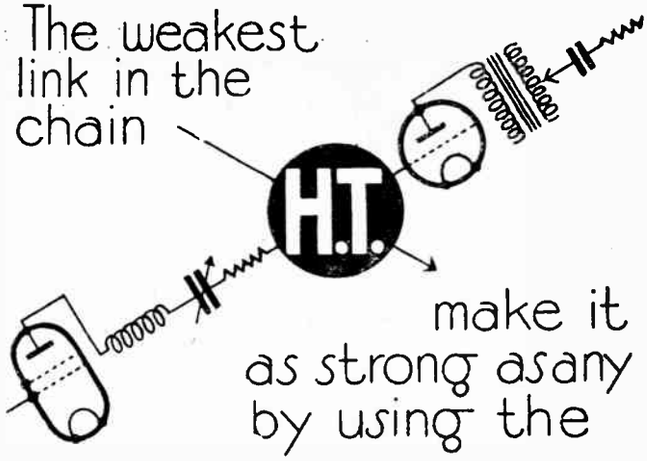

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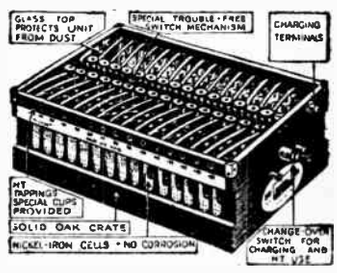

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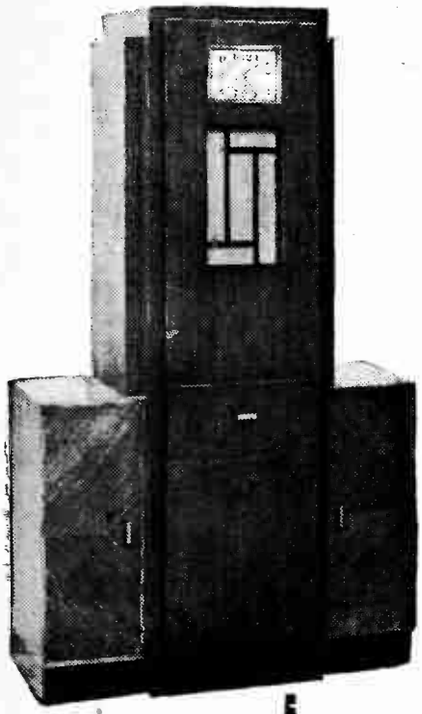

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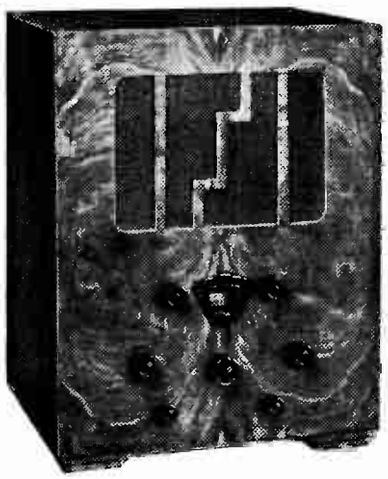
CLASS "B" FERROCART RECEIVER



The fact that this handsome Cabinet, finished in beautifully figured Walnut, was chosen by the "Wireless World" for their latest Receiver, speaks for itself. Fashioned on modern lines, it is of extremely neat design, and its construction leaves nothing to be desired. Special care has been taken to ensure that Cabinet resonances are eliminated.

Overall dimensions :—

Height	19¾in.
Width	15in.
Depth	12½in.

Complete with Loud-speaker Baffleboard, "Konductite" metal-lined baseboard and removable back. Front drilled ready to take the "Ferrocart" Receiver, if desired, without extra charge.

Price, 32/6.

FREE DEMONSTRATION

All readers of "The Wireless World" are cordially invited to see and hear this wonderful Receiver at our Surrey Street Showrooms, where we are displaying an advance model of the complete instrument.

Hours of business: 9 a.m. to 6 p.m. Two doors from the Strand, facing Aldwych tube station.

THE C.A.C. GRANDFATHER CLOCK RADIO-GRAM. CABINET.

This handsome and original design represents the last word in Radio-gramophone Cabinets. Intended to house an electric clock movement, it has provision for fitting a pair of dual compensated Loud-speakers, if desired. Ample room is provided below the speaker grille to accommodate almost any type of Receiver, whilst the electric Gramophone Motor and Pick-up fits into the sliding drawer below. The two side compartments allow for the storage of a very large number of records.

Overall dimensions :—

Height	5ft. 4in.
Width at base...	3ft.
Depth.....	16in.

Price, 12 Guineas.

THE C.A.C. CONSOLE RADIO-GRAM. CABINET.

On the right is illustrated a very handsome Cabinet of the Console type, which will instantly appeal to the connoisseur. In design, attractiveness and elegance it is unequalled, whilst its general quality and finish are absolutely irreproachable. It can he supplied with any desired design and type of grille in figured or burr Walnut, Mahogany, or Oak, to any required finish to match any existing scheme of furnishing.

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The outstanding quality of the Cabinet work supplied by Mr. F. W. Edwards has for years been the subject of laudatory comment by the Trade, the Press and the Public alike. It has always been his endeavour, and this Company will continue, to cater for the individual needs of the Wireless public. The advantages of his many years of experience in connection with the requirements of the Radio industry are still at the disposal of the Public and we guarantee that, not only will every article supplied by us represent the highest grade of workmanship and finish, but, what is equally important, it will he built in a manner scientifically correct, ensuring results which are perfect accoustically—an important factor unknown to the average Cabinet Maker.

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(Advertisement of The City Accumulator Co., Ltd.)

The Wireless World

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As many of the circuits and apparatus described in these pages are covered by patents, readers are advised, before making use of them, to satisfy themselves that they would not be infringing patents.

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EDITORIAL COMMENT

Price of Components

The Case for Reduction

THERE is plenty of evidence that, speaking generally, wireless is cheaper to-day than at any time since broadcasting began, and complete sets can now be bought at prices little more than the valves in them would have cost in the days when broadcasting began.

If we investigate prices at present ruling for component parts of sets, it does not take long for us to arrive at the conclusion that the price of separate parts has not come down in anything like the same proportion, and yet there are many manufacturers of components in the industry to-day who are counting upon progressive sales of component parts to meet the demands of the retail market in the future. We feel that the time has come when it is desirable to warn component manufacturers against a policy of trying to maintain the retail prices at too high a level. We have now almost reached the point when it can be profitable to buy a complete set in order to make use of the parts in constructing some new circuit employing the latest principles, and discarding the surplus material, rather than buying the components as separate items. If the sale of individual component parts is to continue and increase in the future, it is imperative that prices should at least compare favourably with the break-up value of complete sets.

We think that there is probably too much attention paid to-day to the external appearance and finish of individual components for set construction, and if retail prices can be brought down by supplying, for those who wish to construct sets, components of the same type as are used by complete receiver manufacturers, instead of increasing the cost substantially by elaborate external appearance and finish, then we think it should be done.

We have from time to time been instrumental in persuading individual manufacturers to supply, for example, condensers, with soldering tags instead of terminals and without a moulded case, at prices very much lower than was possible when these refinements were added. The constructor cares more about efficiency than the way in which the component is boxed. We do not want to see the electrical efficiency of components suffer in an attempt to bring down the retail price, but we believe that prices can be brought down by attention to economies other than reduction of the electrical efficiency.

Interference

How Individuals Can Help

ENCOURAGING progress is being made towards bringing about legislation to control electrical interference with broadcast reception. *The Wireless World* has long urged the necessity for it and real progress took place when we invited electrical organisations and the Institution of Electrical Engineers to co-operate in the task.

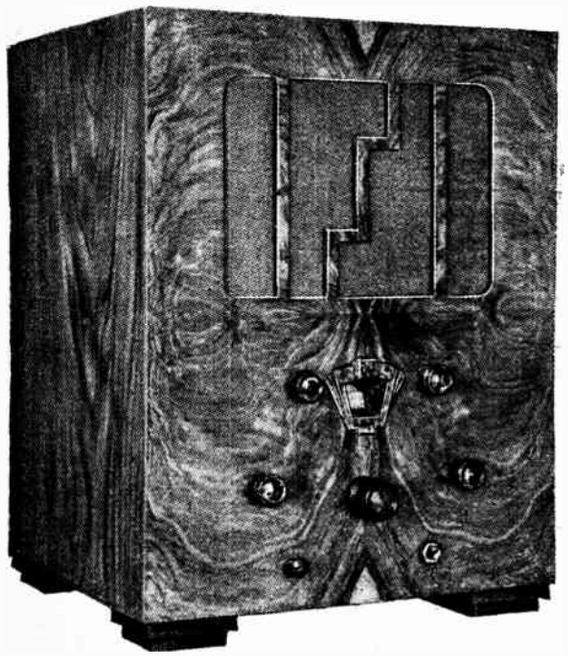
Whilst legislation is of the utmost importance, there is still an immense amount of work which individuals can do to assist in eradicating electrical radiation. Articles in this issue give a number of suggestions. It is particularly important for individual listeners to remember that their own premises may often be responsible for originating local interference.

Finally, individual buyers of electrical apparatus should insist that their purchases must be beyond reproach.

The Class "B" Ferrocart Receiver

A Highly Selective 4-valve Battery Set with 2 Watts Output

By W. I. G. PAGE, B.Sc.



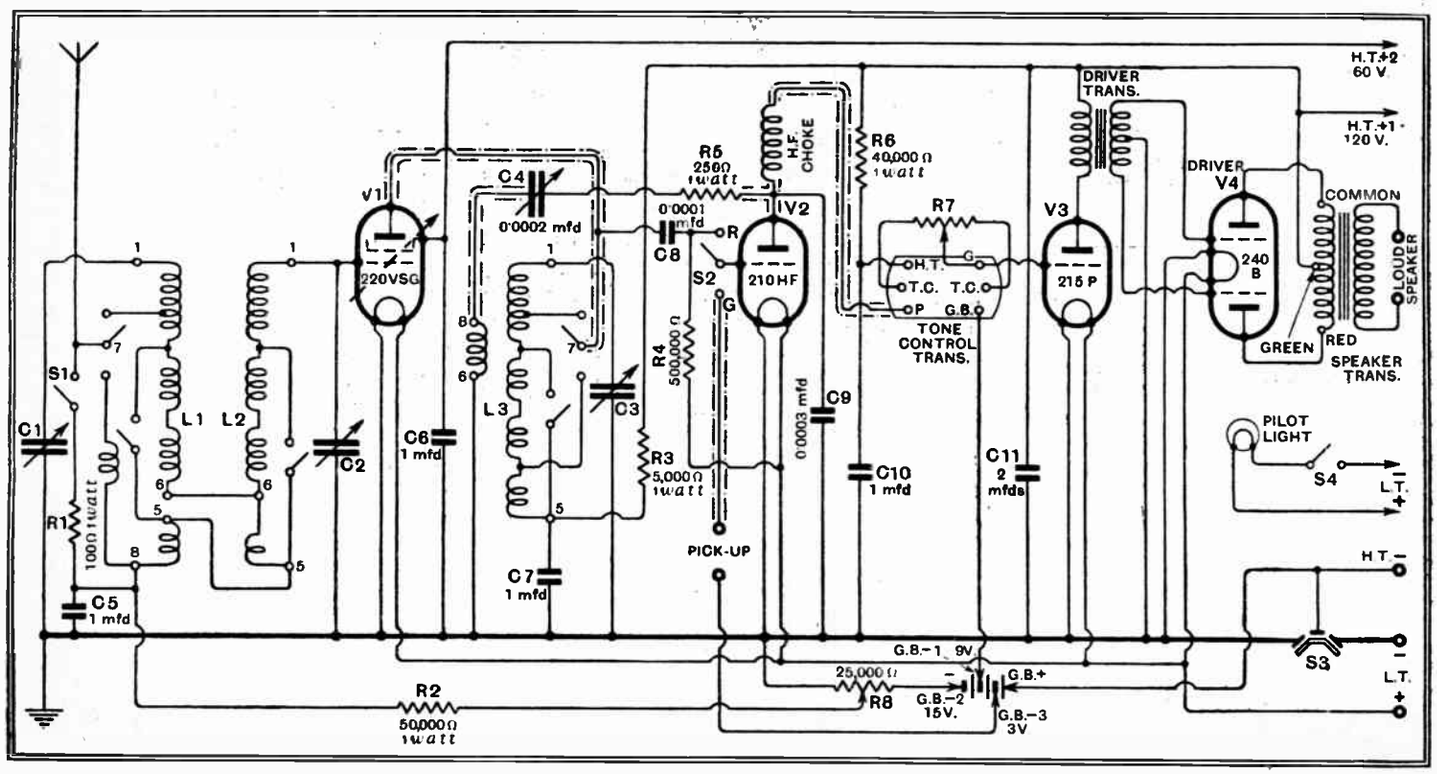
CONSTRUCTIONAL details are here given of a "straight" battery receiver combining the virtues of Class "B" amplification and Ferrocart tuning. A remarkable all-round performance is obtained, for the selectivity is such that 60 kW. stations 9 kc. apart can be separated; the sensitivity is high—some 80 stations being logged in one evening—and the undistorted output is rather more than two watts, being sufficient to fill a small hall. The total working H.T. consumption for full output is about 12 mA.

UP to a few weeks ago it was not possible with a battery set to obtain more than 250-350 milliwatts output when an H.T. battery of normal size was used, so that unless the listener was prepared to employ batteries of large capacity he had to resort to the unfortunate expedient of overloading the output stage to get anything like comfortable loud speaker strength.

The mains receiver, on the other hand, although only of comparatively recent introduction, has had a meteoric rise to fame, development after development leading to the highly specialised equipment of to-day. Now, almost overnight, after years of rather slight and painful progress, the battery set is able to put its owner in practically the same advantageous position as the man with a mains set. It is in the output stage that such progress has been made.

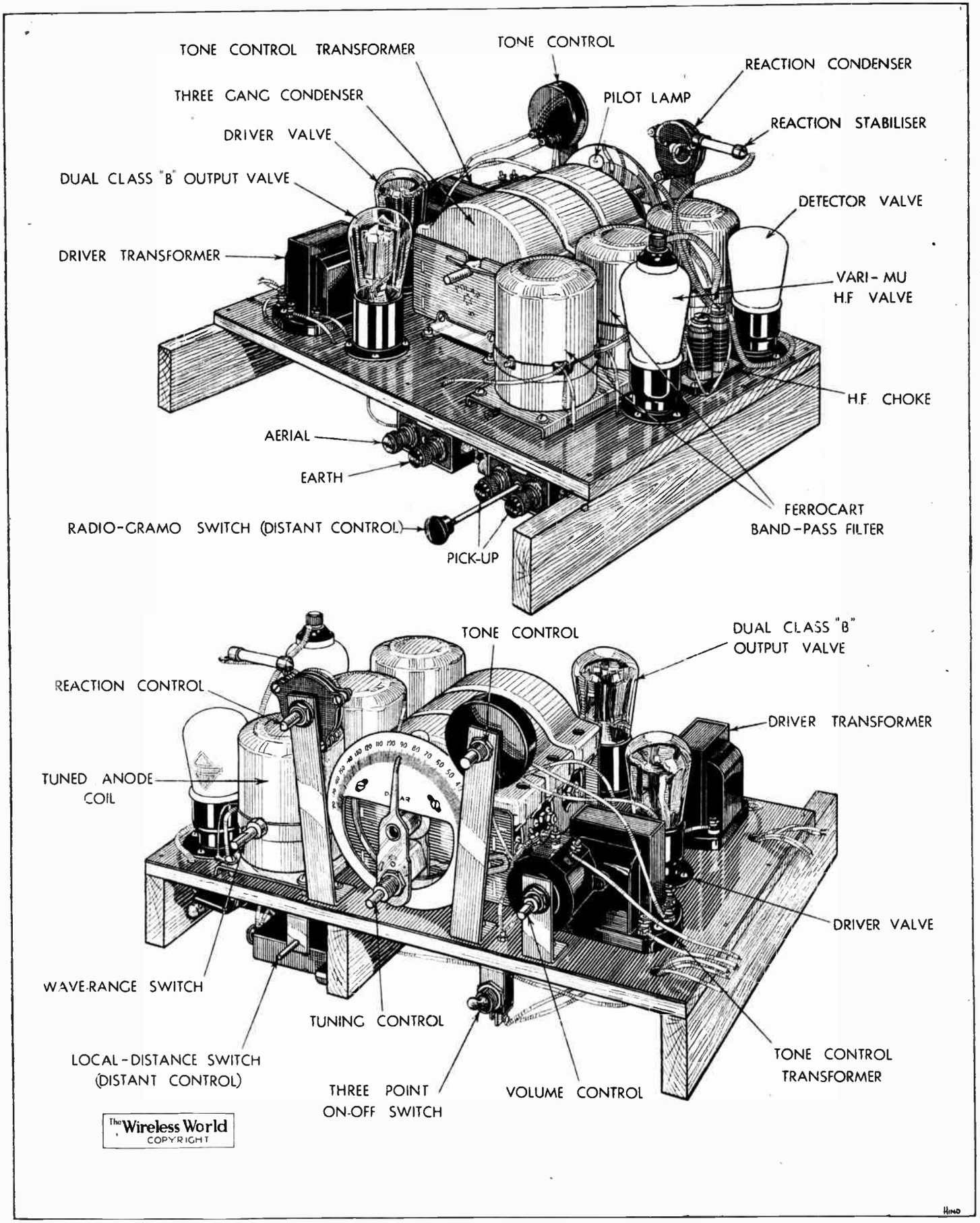
The new Class "B" amplifier, as exemplified by the Cossor 240B valve, confers the tremendous advantage of delivering over two watts output of extraordinarily good quality for a working H.T. consumption, which is within the rating of quite a modest H.T. battery.

Just as in the case of Q.P.P., the H.T. current drain with Class "B" output is proportional to the strength of the signal received, since in both cases the valves are working near the anode current cut-off point at the lower bend in the characteristic. But for the former scheme to give of its best, matched valves are desirable, and a milliammeter then becomes necessary; also with an ageing H.T. battery some sort of bias battery discharge scheme is required. With the 240B dual valve, the matching is done by the makers, and, as the working grid potential is zero volts, no bias is needed at any H.T. voltage. In addition to the merit of providing a very large power output, it will be seen, therefore, that Class "B" has important advantages over



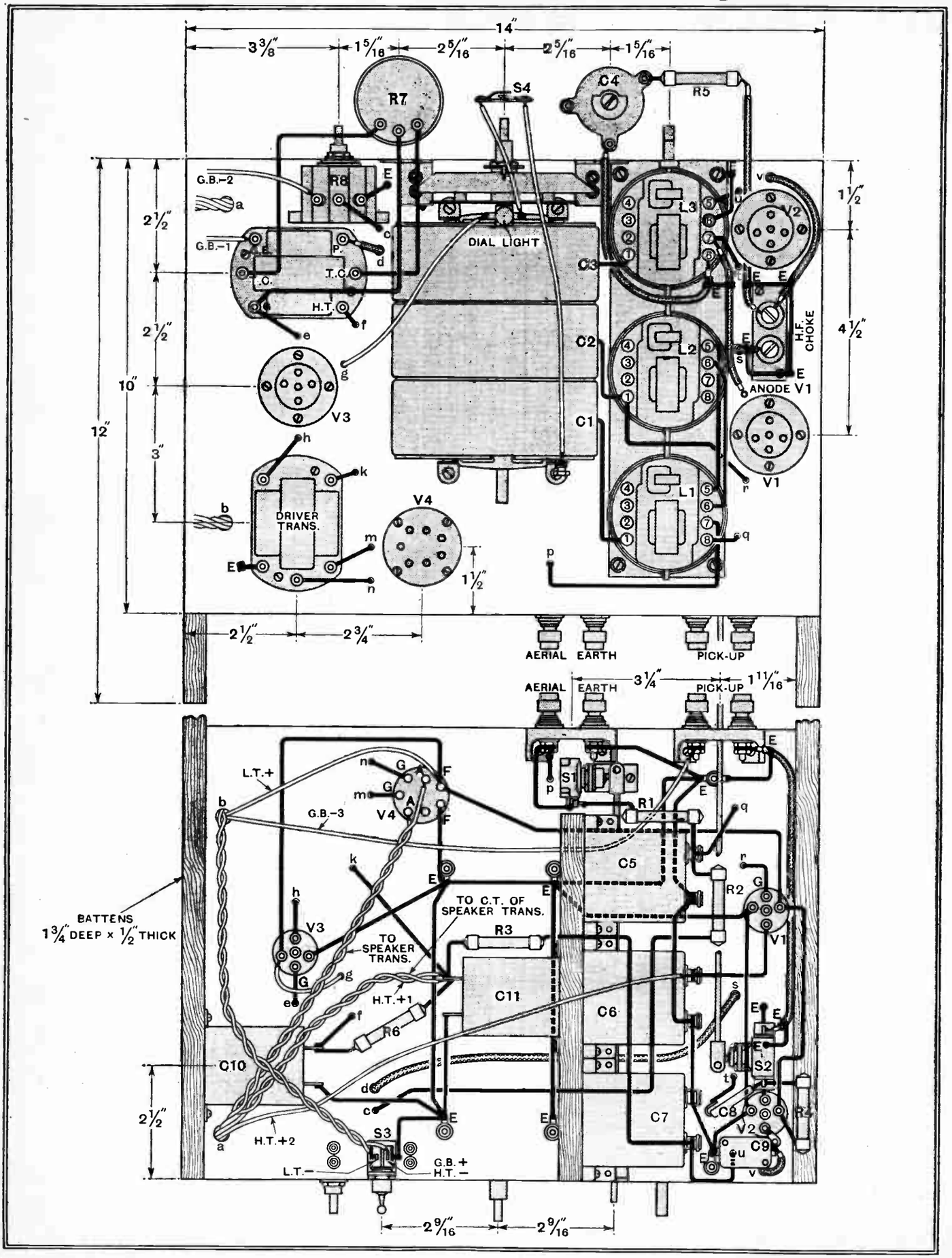
The complete circuit diagram. The switch S4 is contained within the tuning knob and connects the dial light only during the process of tuning. To prevent long leads and the risk of instability the switches S1 and S2 are distant-controlled.

New Battery Receiver Technique



Two views of the receiver chassis. It will be seen that considerable flexibility of control is given by the inclusion of reaction, volume control, tone control, local-distance and gramo-radio switches.

Dimensional Data and Complete Wiring Plan

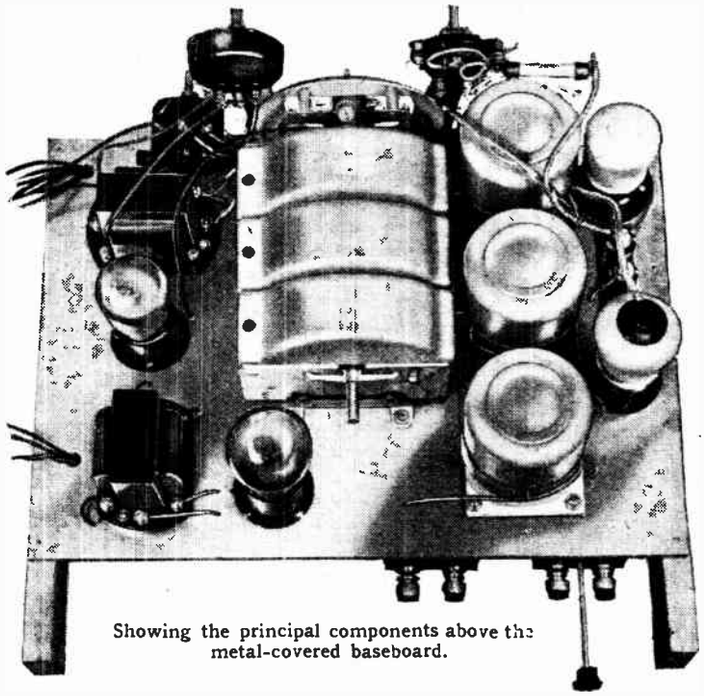


Details of the layout of components and wiring above and below the baseboard. The tone-control potentiometer and the reaction condenser, which are mounted on vertical brass strips, are here shown projected in front of the receiver.

The Class "B" Ferrocart Receiver—

other output systems, and will probably find its way into the majority of future battery sets.

It would be reasonable to ask whether



Showing the principal components above the metal-covered baseboard.

a price must be paid for such sterling qualities. Is the reproduction harsh? Must we expect rather more than the usual quota of harmonics? Actually, if valves of the correct characteristic are chosen by the makers for the components of the dual valve, curvature distortion can be almost completely cancelled out. Provided that no attempt was made to extract much more than two watts from the receiver being described, the quality was beyond reproach, and was certainly equal to that of a well-designed mains set rated to give the same volume.

Almost simultaneous with the arrival of Class "B" comes the introduction of the Ferrocart coil into this country—a tuning inductance of such valuable properties that we are forced to reconsider the adequacy of the single H.F. set for modern ether-congested conditions. This type of receiver was fast becoming obsolete owing to the extreme difficulty in obtaining interference-free reception from certain stations. But with the new iron-cored tuning coils it is coming into its own again, and transmissions of 60 kW. separated by only 9 kc. can be received free from unwanted background, and the "spread" of a local station at a distance of nine miles need not occupy more than just a little over two channels each way. It was found quite easy to separate completely Poste Parisien and Breslau, Midland Regional and Sottens, also Rome and Stockholm, and to enjoy the programmes from a large number of the 80-odd stations which were logged during an evening's test. It was noteworthy that Mühlacker could be received without any background of London Regional at a point sixteen miles south of London.

For the sake of convenience, the receiver chassis has been built into a cabinet, and, excepting the need for an external aerial and earth, the equipment is entirely self-contained. The permanent-magnet moving-coil speaker is housed in the upper compartment, together with the H.T. and L.T. batteries, the latter being of 45 ampere hours, and so providing some 53 hours listening per charge for the 0.85 amp. consumption of the valves. The voltage of the H.T. battery is 135, but only 120 is needed for the various anode feeds; it is therefore necessary to put the wander plug H.T. + 1 into the appropriate tapping and to increase the potential step-by-step while the initial drop is taking place during the first two or three weeks working. The $1\frac{1}{2}$-volt tappings to be found at the positive end of the battery, although meant for Q.P.P. amplification, are thus made to serve a useful purpose.

The bias battery is part of the H.T. battery, and so is automatically renewed each time a replacement of the latter is made. This ensures that the various grid potentials are maintained at approximately correct value, and valve life is therefore increased. The wander plug marked G.B.+ serves also to make a connection with H.T. −, while G.B. − 1 should be set at − 9 volts, and G.B. − 2 and G.B. − 3 should be set at − 15 and − 3 volts respectively. Screening grid volts (H.T. + 2) for V1 should be set at 60, 70 or 80 volts—whichever gives the best results.

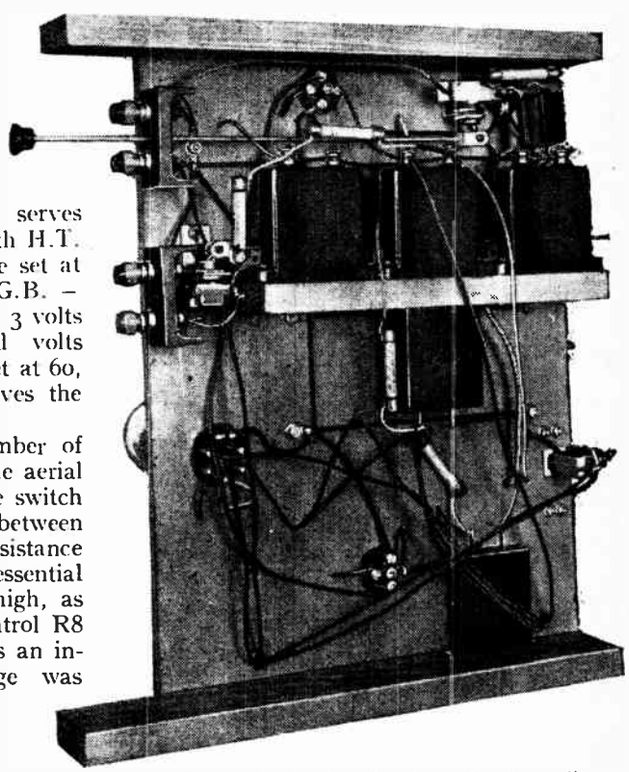
The circuit contains a number of interesting refinements. At the aerial input there is a local-distance switch S1 throwing into circuit between aerial and earth a 100-ohm resistance R1. This was found to be essential when the field strength was high, as the potentiometer volume control R8 had not sufficient range unless an inordinately large bias voltage was used. To prevent undue sideband cutting, the two Ferrocart input coils are coupled by common inductance forming a band-pass filter, and to maintain symmetry with the intervalve coupling the condensers C5 and C7 should both be non-inductive and of the same value. The anode of the variable-mu valve and the grid of the detector are joined and tapped well down the tuned anode coils for long and short waves, and the turns ratio of each auto-transformer is made equal, so that ganging shall hold throughout.

Reaction is applied to the tuned anode coupling *via* a 0.0002 mfd. condenser C4, and to prevent slight backlash on the long waves a resistance R5 of 250 ohms is interposed in series. To minimise stray fields screened leads are used for reaction, H.F. and detector anode circuits, also for the high-potential pick-up connection.

Pre-driver tone control.

With the type of push-pull circuit in which the anode current consumed is proportional to signal strength it is obviously wasteful to shunt away from the speaker any frequency band which has taken its energy from the H.T. battery. But this is what happens when the conventional pentode compensating circuit is joined across the primary of the output transformer in a Class "B" amplifier. As explained in last week's issue[1], the over-emphasis of high notes must be checked, and to effect this economically, saving some 15 to 20 per cent. of current, it is advisable to control the tone before the driver stage.

In the present receiver a transformer with a continuously variable tone control has been chosen to link the detector V2 to the driver valve V3. This is found to be very valuable in correcting the effect referred to, as well as minimising needle scratch from records and providing a means of altering the tone to suit the many moods of the listener.



The under-baseboard, where the decoupling components and the distant-controlled switches are mounted.

To compensate for the losses in the

[1] See "Practical Class 'B' Amplification."

The Class "B" Ferrocart Receiver—

grid circuit of the 240B valve (V_4), a 215P driver valve, working into a transformer of a 1 to 1 overall ratio, is used to deliver the necessary 70 milliwatts. The most satisfactory bias voltage for the driver is nine.

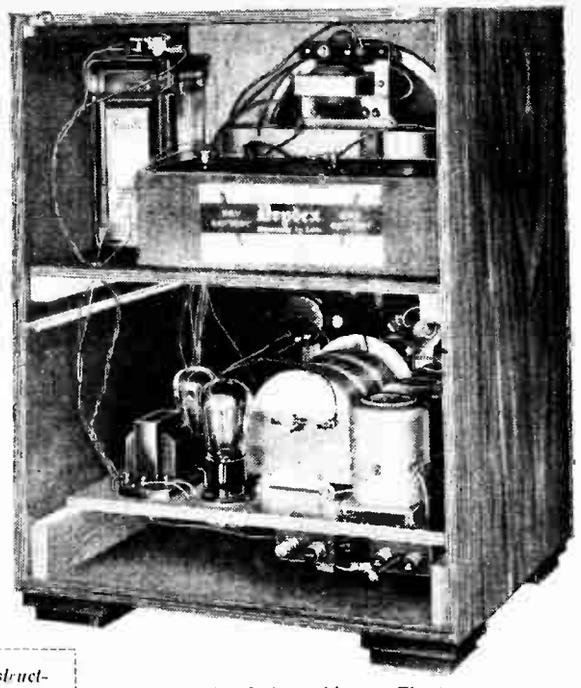
A refinement in respect of the control of switches has been introduced into this receiver. It is often found that when a local-distance switch or a radio-gramophone switch is mounted on the panel for the sake of accessibility its connecting leads may be unduly long, but it is perhaps not expedient to use screened sleeving. This may lead to instability, and the solution seems to lie in mounting the switches in their best position electrically and to arrange distant control.

The radio-gramophone switch S2 is placed so that the lead to the detector grid is only ¼in. long, and a control rod is taken to the back of the cabinet through the centre of the terminal mount. Similarly, the local-distance switch is arranged close to the aerial input circuit, but the control knob is 9in. away on the panel. In this way an efficient wiring scheme is possible.

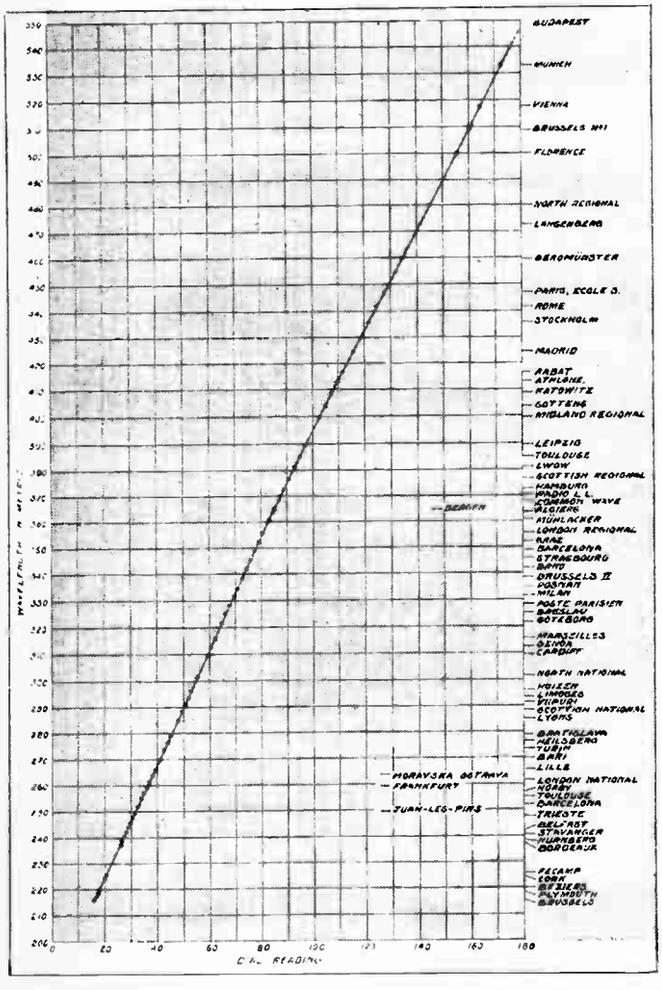
An improved appearance to the cabinet is given by the use of uniform control knobs engraved with the function which each performs. The knob controlling the ganged condenser contains a switch which connects the pilot lamp in circuit only during the process of tuning; this prevents wastage of L.T. current.

The construction of the set should present no difficulty when reference is made to the photographs and drawings which accompany the article. As soon as the set is completed and the batteries connected, the tuning knob should be rotated until some station (such as the London National) is received at the lower end of the medium waveband. The ganged condenser must now be aligned by trimming each section, using a short screwdriver. Having obtained the maximum sensitivity at a low setting of the tuning dial, it will be found that ganging holds over both wavebands. Should the tuning range not extend quite to 550 metres, the ganging should be carried out again, using more capacity in all the trimmers. For nearby transmissions the local-distance switch will have to be put into operation to prevent overloading. Gramophone reproduction is particularly effective with Class "B" amplification, especially where a tone control is embodied. Over-emphasis of any frequency band can be compensated, and needle scratch can be very considerably reduced. During the playing of records H.T. current can be conserved by turning the volume control R8 to the full negative position. The wiring of the radio-gramophone switch may not be absolutely clear from the various illustrations. There are four points on this switch, the two contacts underneath being linked together and taken to the grid terminal of the detector valve holder. Of the two upper contacts, one is joined to the grid leak and the other is taken via a screened lead to one, pick-up terminal. The body of the switch is earthed.

For the convenience of readers constructing this receiver, a full-size blue print is available from the publishers at 1/6 post free.



The back of the cabinet. The top compartment contains the moving-coil speaker, the L.T. and H.T. batteries.



Calibration curve for the medium waveband only. Each of the 72 plotting points represents an identified station. The calibration of individual receivers will vary slightly, but the curve should be a useful guide.

A specimen receiver built to this design is available for inspection at 116-117, Fleet Street, London, E.C.4.

LIST OF PARTS.

After the particular make of component used in the original model, suitable alternative products are given in some instances.

Set of Three Ferrocart tuning coils, Colvern type F1, F2, F3
1 3-gang tuning condenser and disc drive, C1, C2, C3 Polar "Star"
1 Reaction condenser, 0.0002 mfd., C4 Ormond R/504
(J.B., Utility)
1 H.F. Choke McMichael Binocular Junior
(Bulgin)
3 5-pin Valveholders Clix chassis-mounting type
1 7-pin Valveholder Clix chassis-mounting type
(Benjamin, Radiophone, W.B.)
1 4-pt. double-throw switch with distant control, S2 Radiophone type 450.X.
1 On-off switch with distant control, S1 Radiophone type 485.Y.
1 3-pt. switch with long throat, S3 Radiophone type 630
1 Volume-control potentiometer, 25,000 ohms, R8 Wearite, Q.V.C.
(Bulgin, Radiophone, Watmel)
1 Tone-control potentiometer, R7 Multitone
1 Tone-control transformer, 4 to 1 Multitone "Toco"
1 Driver transformer, 1 to 1 overall Multitone
(Benjamin, Ferranti, Lotus, R.I., Sound Sales, Trix, Varley)
1 Resistance, 100 ohms, 1 watt, R1 Dubilier
1 Resistance, 250 ohms, 1 watt, R5 Dubilier
1 Resistance, 5,000 ohms, 1 watt, R3 Dubilier
1 Resistance, 40,000 ohms, 1 watt, R6 Dubilier
1 Resistance, 50,000 ohms, 1 watt, R2 Dubilier
1 Resistance, 500,000 ohms, R4 Dubilier
(Erie, Graham Farish, Claude Lyons)
3 Non-inductive condensers, 1 mfd., 200 v. D.C. working, C5, C6, C7 T.C.C. type 50
1 Condenser, 1 mfd., 250 v. D.C. working, C10 T.C.C. type 65
1 Condenser, 2 mfd., 250 v. D.C. working, C11 T.C.C. type 65
1 Condenser, 0.0001 mfd., C8 T.C.C. type "M"
1 Condenser, 0.0003 mfd., C9 T.C.C. type "M"
(Dubilier, Hellesens, Peak)
4 Terminals, aerial, earth, pick-up, pick-up Belling-Lee type "M"
2 Terminal mounts Belling-Lee
Baseboard, Plymax, 10in. x 14in. x ⅜in. Peto-Scott
With battens and brass metal strips
6 Wander plugs, G.B.—, H.T.+1, H.T.+2, G.B.—1, G.B.—2, G.B.—3 Clix type B
2 Spade terminals for L.T. Clix
1 Pilot lamp, 2 volt Bulgin
1 Tuning knob pilot light switch, S4 Wearite
1 Set of uniform engraved knobs Danipad
Screened sleeving, 1 yard Harbros
2 oz. No. 20 tinned copper wire, 4 lengths Systoflex, wood, flex, etc.
Wood Screws: 20 ¾in. No. 4 R hd.; 12 ¼in. No. 4 R hd. 4 ¾in. No. 6 R hd. **Metal Screws:** 8 4B.A.; 12 6B.A., with nuts and washers.
4 Valves: 220VSG, metallised; 210.HF, metallised; 215.P. and 240.B. Cossor
1 Loud speaker with Class "B" transformer Amplion
(British Rola, Celestion, Epoch, Ormond, Sonochorde)
1 H.T. battery, 12 mA. type including bias battery, measuring 10-9/16in. x 6-9/16in. x 8¼in. Drydex H.1063
(Ever Ready, W.1210)
1 L.T. accumulator Exide D.F.G.
1 Cabinet C.A.C. Cabinets, Ltd.

FIRST AGAIN!

Exide AND Drydex

BATTERIES

for the

WIRELESS WORLD

CLASS 'B' FERROCART RECEIVER

The first specially designed H.T. battery for Q.P.P. was a Drydex, and the first set with Q.P.P. had a Drydex. Now Drydex is again specified for H.T. in the first set with a Class 'B' output stage, while an Exide is specified for the L.T. To make sure of the same results as obtained by the designer get these Exide and Drydex Batteries:

For H.T. — Drydex Type H 1063, 135 volts H.T. plus 18 volts G.B. - - - - - **18/6**

For L.T. — Exide Type D F G - - - - **8/6**

+

Obtainable from Exide Service Stations and all reputable dealers: EXIDE BATTERIES, EXIDE WORKS, CLIFTON JUNCTION, NR. MANCHESTER. Branches: LONDON, MANCHESTER, BIRMINGHAM BRISTOL, GLASGOW, DUBLIN, BELFAST

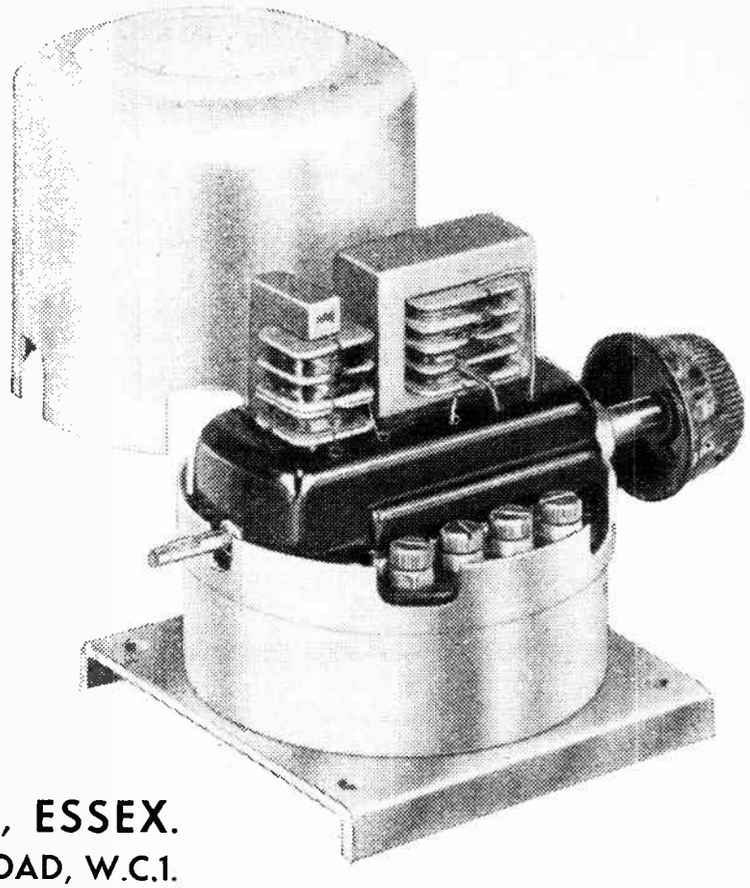
Advertisements for "The Wireless World" are only accepted from firms we believe to be thoroughly reliable.

COLVERN

FERROCART COILS

Tuning coils of maximum efficiency are essential in the attainment of selectivity and sensitivity. Colvern Ferrocart Coils, though of considerably smaller dimensions than the relatively inefficient screened air-cored coils, are actually more efficient than unscreened Litz wound large diameter coils. In the "Wireless World" Class "B" Ferrocart receiver, remarkably high selectivity and excellent quality are achieved, due to the inclusion of Colvern Ferrocart coils and Class "B" amplification.

SPECIFIED FOR THE CLASS "B" FERROCART RECEIVER.
One set F1, F2, F3 Coils, ganged on sub base plate with wave change switch.
PER **50/-** SET.



Made under license from the Patentee, Hans Vogt.

Types F1, F2.—Input band-pass filter. Constant selectivity, ganging unaffected by variations in aerial reactance, symmetrical resonance curve.

Type F3.—Auto transformer intervalve coupling with reaction, ganging perfectly maintained on both wave ranges by transfer of tapping point in correct turns ratio, practically constant reaction.

COLVERN LTD., ROMFORD, ESSEX.
London Wholesale Distributing Depot— 150, KING'S CROSS ROAD, W.C.1.

An open invitation to see and hear "The Wireless World" CLASS "B" FERROCART RECEIVER

C.A.C.

You are cordially invited to see and hear the famous Class "B" Ferrocart Receiver at our Showrooms:
4, SURREY STREET, STRAND, W.C.2
(Immediately facing Aldwych Tube Station).
SEE PAGE 6

The Class "B" FERROCART RECEIVER.

A highly Selective 4-Valve Battery Set giving the remarkable power output of two watts.

"This Receiver embodies the most advanced technique in battery Receiver design. Selectivity approaching that of a Super-heterodyne is obtained . . . . . "
(vide "The Wireless World," March 31st, 1933.)

In view of the remarkable performance of the new Class "B" Battery Valve, both as regards quality of reproduction and power output, it can safely be predicted that this type of output will be included in the majority of future battery sets. In efficiency it is considerably greater than any other output stage, and, in combining this method of amplification with the undoubted superiority of the Ferrocart Coils, "The Wireless World" has to be congratulated on evolving a circuit which, at least as far as battery operated sets are concerned, has totally eclipsed all previous efforts.

So certain are we of the tremendous demand on the part of the Public for the components necessary to build this admirable Receiver, and in order that our customers shall not be disappointed, we have ensured that adequate stocks of the complete kits, or of any individual component, shall be available on demand. By sending an order direct to us you can rely implicitly on delivery by return.

We can supply by return the specified parts for this Receiver.

KIT "A" Complete (less Valves, Batteries, Cabinet and Loud Speaker) £8 3 6
KIT "B" Complete with Valves (less Batteries, Cabinet & Loud Speaker) £10 9 9
KIT "C" Complete with Valves, Cabinet and Loud Speaker (Less Batteries). £14 1 9

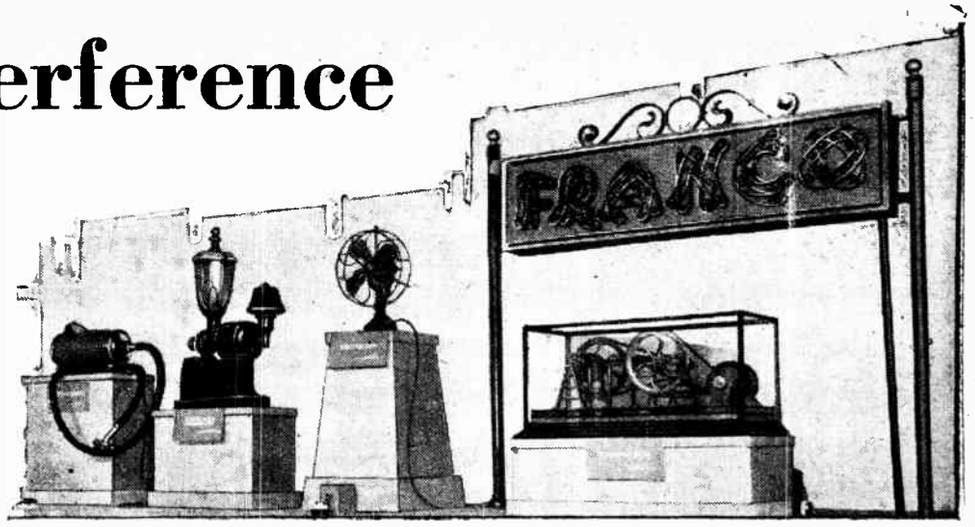
INDIVIDUAL COMPONENTS SUPPLIED AT MANUFACTURERS' LIST PRICES.

THE CITY ACCUMULATOR CO. LTD.,
Showrooms: 4, Surrey Street, Strand, London, W.C. 2.
Office and Works: 7, Angel Court, 173, Strand, London, W.C.2.
Telephone: Temple Bar 8620. Telegrams: Cityacco, Estrand, London.

Local Interference

How To Track It Down

By R. W. HALLOWS, M.A.



Types of local interference. The electric sweeper, coffee roaster, fan and flashing sign.

THE campaign against interference with broadcast reception inaugurated some time ago by *The Wireless World* has already had good effect in stirring up the authorities and electrical organisations. There is a vast amount of work to be done, however, by individual listeners before we are free from man-made interference, most of which is unnecessary and preventable.

Before taking any action in the matter of making reports to the authorities when interference is experienced it is always advisable to make quite sure that it is not being produced in one's own home. There are numerous ways, many of them not generally suspected, in which such a thing can occur, and a point to bear in mind is that the interference may not be confined to one's own house alone, but may also trouble those in neighbouring dwellings.

Defects in the electric lighting or power system of a house can be responsible for intolerable cracklings, which usually resemble the worst and most violent of atmospherics. In a new or newish house the wiring should be above suspicion, but there are many homes in which the wiring was done twenty, thirty, or more years ago, and has since received little or no attention. Tests with a bridge megger in such cases often produce surprising results!

An unusual example of interference was found to be due to the vibration of a fractured filament of a 100-watt lamp. The vibration produced a high-pitched whistle.

Besides the noisiness that may come from defective wiring, electrical fittings of all kinds are capable, in certain circumstances, of indulging in unwanted broadcasting on their own account. Not long ago I traced a terrible outbreak of crackles to a loosely connected lead in a lighting switch. A friend who was tormented by appalling interference found the source eventually in a badly fitting mains fuse.

An Unusual Case

Anything in lighting or power circuits that makes a bad or intermittent contact can be responsible for such troubles. Examples that I have come across are an electric light bulb that fitted loosely into its holder, a wall plug that was wobbly in its socket, and an electric heater within whose plug a single thin strand of flex had escaped from the rest and was causing a small intermittent arc.

Perhaps the queerest case was one which concerned an electric light bulb, though the interference did not take the form of crackles, and was not caused by a loose fit between the base of the bulb and its holder. A friend, whose wireless set was in use in the evening only, complained of a piercing whistle which accompanied all transmissions, no matter what their wavelength. The whistle was heard, though much less loudly, in the houses on both sides of his, and the neighbours found that it did not begin until after his lights had been switched on.

Asked to lend a hand in locating the trouble, I took with me a miniature portable set designed for telephone reception. Experiments with this demonstrated that the whistle was at its worst in the room in which my friend's wireless set was installed. The farther one went from this room the fainter was the whistle.

There was no question that it was definitely centred in this room. A good plan in such cases is to begin by switching off (or removing from their sockets if there are no individual switches) each of the electric light bulbs in turn. There were four in this room, three of about 50 watts and one large 100-watt lamp. Putting the smaller bulbs out of action had no effect, but when the big lamp was removed from its socket the noises ceased immediately. A new one was put in to replace it and all was well.

INTERFERENCE-HUNTING should begin at home. If every wireless listener would undertake to check up all possible sources of electrical interference in his own home and eliminate the causes, we should have progressed a long way towards a solution of the interference problem. In this article the author suggests some typical sources of interference.

How could the lamp have caused the whistle? This was at first something of a mystery, but examination of its filament with a strong magnifying glass showed that there was a break at one point. The broken end had been vibrating rapidly, making and breaking connection hundreds of times a second. The result was the production of a high-pitched note by the wireless set and the loud speaker.

When Buying Electrical Apparatus

Such vibration of the filament is probably very rare; but lamps with broken filaments are often used quite unwittingly. If the ends of the wire are normally in close contact no interference takes place unless the lamp is shaken. But when someone walks across the floor of the room above or a heavy lorry passes in front of the house pseudo-atmospherics may manifest themselves. Those who install household electrical apparatus such as fans, refrigerators, hair dryers, massage machines or vacuum cleaners should remember that any of these are potential sources of interference which will in all probability not be confined to their own homes. It is the plain duty of every wireless enthusiast nowadays, in self-defence and in defence of others, to make sure that any such apparatus used in

Local Interference—
his own home is of the non-radiating type. A guarantee to this effect should be insisted on when the apparatus is purchased, and to make assurance doubly sure a demonstration should be asked for with the wireless set in operation at the time.

Even in small towns and villages traffic signals are being erected nowadays by local and county authorities. Some of these can, and do, give a great deal of trouble to listeners, though there are British-made patterns which are completely non-radiating. When it is proposed to install traffic signals ratepayers will be well advised to bring these points strongly to the notice of the authority responsible.

Procedure in Cases of Interference

Once it has been established definitely that interference with the reception of broadcast programmes is occurring in a locality, and that no household appliance is to blame, the proper procedure is to bring the matter to the notice of the B.B.C., which has a special department for dealing with interference, and works in close co-operation with the Post Office. It is not as a rule advisable to endeavour to reason with the owner of the offending apparatus, particularly if he is of a difficult or cantankerous nature. When this is done and has no result, the Post Office authorities all too frequently find that their pitch, if I may so put it, has already been queered. It is, though, a help to them if the source of interference can be narrowed down to a comparatively small area, and this can usually be carried out in a completely unostentatious way with the help of a motor car, a large scale map of the locality, and a portable set whose built-in frame aerial is reasonably directional. By taking the set for a drive and plotting on the map the direction of the frame which makes the interference most strongly heard at various points, the position of the source of the unwelcome noises can usually be narrowed down to a comparatively small area. The portable set shows, too, just how widespread the interference is.

Interference in Short Waves

One last point about man-made interference. When the majority of motor cars used magnetos for ignition systems interference was practically confined to the short waves. To-day there are coil and battery systems which, as superheterodyne users have perhaps discovered for themselves, can, and do, radiate in such a way as to interfere with stations operating upon the medium waveband. This kind of interference may in time assume very serious proportions unless steps are taken to prevent it. Readers who are motorists can do a great deal in this direction if they will insist upon an assurance from the makers that no such radiation can take place from the cars that they propose to purchase.

Practical HINTS and TIPS

AIDS TO BETTER RECEPTION

VARIOUS applications of the testing buzzer to modern sets were discussed in this section of *The Wireless World* of March 31st, where it was urged that this device still has many fields of usefulness. Those readers who have set up a valve oscillator for experimental or testing purposes may be interested to know that a buzzer may be used to modulate the radiation from the oscillator, so that it may be rendered audible through a receiver which is not in a state of self-oscillation.

The Buzzer as a Modulator.

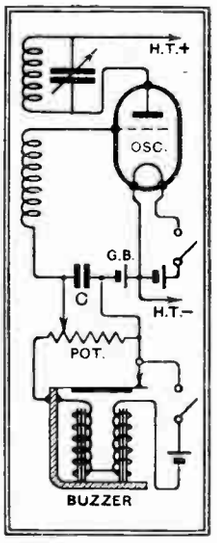


Fig. 1.—A simple and inexpensive method of modulating a test oscillator.

There are a number of ways in which the buzzer may be made to modulate the oscillator, but for amateur use, the method shown diagrammatically in Fig. 1 is probably the most convenient. In order that the depth of modulation may be regulated, a potentiometer is fitted; this may have a resistance of anything from 1,000 or so ohms upwards. For the by-pass condenser C, a value of roughly 0·001 mfd. is suitable.

When heavy modulation is required it will be advisable to remove the shunt which is usually wired across the magnet windings of testing buzzers. Again, when control of modulation is not needed, the arrangement may be simplified by merely connecting the make-and-break contacts of the buzzer across a resistance of 1,000 ohms or so, inserted in the oscillator grid return lead. The resistance should be shunted by a by-pass condenser of the value already suggested.

IT should be remembered that certain types of fault in modern valves—and particularly those of the indirectly-heated type—will only show themselves when the heater has reached its normal operating temperature. For instance, a partial or complete breakdown in heater-cathode insulation, which is often responsible for effects that are very difficult to diagnose, will generally not be evident when the valve is cold. Similarly, a break may exist in the heater itself, or in its connections; the ends may remain in contact as long as temperature is fairly low, but after expansion has taken place, the broken ends may part until some time has elapsed for sufficient cooling to take place.

Under Working Conditions

It is sometimes none too easy to carry out tests for faults of this nature while the valve is in position in a receiver, where it is bound to be more or less inaccessible. Testing will also be hampered by existing connections to the electrodes.

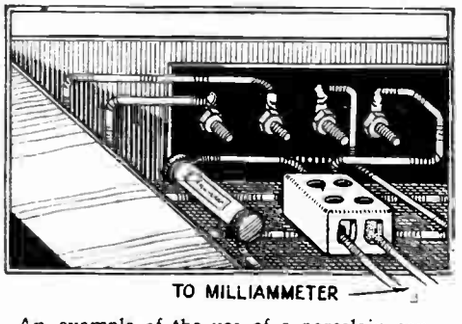
Where faults of this nature are suspected, it is an excellent plan to wire up temporarily an extra valve holder external to the receiver; in many cases a pair of leads from the L.T. transformer to the heater terminals of the valve holder will be all that are necessary, but if the application of anode voltage is necessary to complete the test, this may be obtained from a suitable point in the receiver.

WHEN modifying or testing a receiver it often becomes necessary to break into an existing connection in order that some component or another may be wired in series with the circuit. Simple as it would appear, it is not always easy to do the job, although it is generally regarded as too trivial for the soldering iron to be brought into action.

Break-in Connectors

As the joints will probably be inaccessible it will not be easy to insulate them with a wrapping of adhesive tape, but there is a risk that, unless some such precaution is observed, a short circuit will take place.

To avoid such possibilities, the use of a "two-way" porcelain connector, of the type that may be bought from most electrical dealers, is to be recommended. Provided that the wire to be "broken into" is not already stretched taut, the connection may be made quickly in the manner illustrated in the accompanying sketch. As the metal insets and terminal screws of these porcelain connectors do not protrude beyond the porcelain, short-circuits are virtually impossible.



An example of the use of a porcelain connector for making a temporary addition to internal wiring.

NEWS *of the* WEEK

Current Events in Brief Review

State Controlled

THE Yugoslavian broadcasting stations at Belgrade and Ljubljana are about to be taken over by the State.

Beer on the Air

ALL limitations upon the advertising of beer by broadcast have been removed by the rejection by the U.S. Senate of the Dill Amendment to bar alcoholic publicity on the radio.

Mad Dog at Mike

A MAD dog recently made an appearance before the Berlin microphone to lend colour to a talk on "Rabies." Listeners were asked to note carefully the sound of its bark, so that, in an emergency, they might recognise the characteristic inflections.

Something Special

LISTEN for some good concerts from Radio Barcelona. To commemorate the opening of new studios and offices, the Programme Directors have organised a series of concerts, which "by their originality and quality will be something new in the history of Catalonian broadcasting."

"The National Station"

GERMANY'S new Minister for Propagnada, Dr. Goebbels, has announced that Königswusterhausen will be developed into the representative German transmitter. This means that the Berlin Funkstunde will lose its present predominance. The "Deutschlandsender," i.e., Königswusterhausen, now broadcasts a daily "national hour" from 7 to 8 p.m. G.M.T. which is relayed by all German stations.

School Radio in France

FRANCE may have lagged behind other nations in the development of broadcasting, but the same cannot be said of her radio education system. According to the latest statistics there are now no fewer than 3,241 French schools equipped with wireless receivers. Approximately 6,100 schools in Great Britain are equipped with broadcast receivers.

The Electronic Organ

MM. ARMAND GIVELET and Eloi Couplex, the inventor and constructor respectively of the electronic organ at Poste Parisien, have received personal congratulations from the President of the Republic. The President, who is reported to be an expert technician, recently examined this thermionic valve-operated instrument and listened to a recital.

'Phoning to the Philippines

FOR £6 12s. it is now possible to speak on the Post Office telephone for three minutes to Manila in the Philippine Islands. The charge for each subsequent minute is £2 4s.

Good Idea

"IF all owners of wireless sets that are five years old would replace them by modern sets they would help the unemployment problem considerably.

"At the same time they would add to their own enjoyment."—From the correspondence column, *The Daily Express.*

All Opera Station ?

THE possibility of programme specialisation by European stations is suggested by the proposal of Dr. Adolf Erdos, of Vienna, that a powerful transmitter should be set up at some central point to broadcast opera performances exclusively. This would enable opera lovers of all nations to rely upon hearing opera every night.

The idea could be extended so that the same regular facilities could be enjoyed by lovers of symphony concerts, light classics, or, perhaps, hot jazz.

Canine Query Night

A CERTAIN French station, whose identity must not be further divulged, recently accepted an S.O.S. message from a lady whose dog was lost. The appeal was successful, with the result that letters are now arriving by hundreds intimating the straying of all sorts of breeds of dogs. French radio journals are asking whether the fortunate lady whose dog was recovered will sponsor a weekly hour for the purpose of restoring these false and fickle Fidos to their owners.

Record Radio Sales

THE British radio industry broke all records in 1932. According to the third statistical number of "The Wireless and Gramophone Trader," the gross turnover for the year at retail values was £36,627,425. Receivers were sold to the extent of £19,323,000, while components and accessories touched the five million pounds mark. Some 4,653,100 valves were sold at a retail figure of £2,854,425. As was to be expected, three-valve sets topped the list, and of these 369,829 were mains-operated and 311,886 battery models.

The year's trading showed an additional turnover of £7,000,000 compared with 1931 despite the fact that prices continue to drop.

EASTER, 1933

The issue of *The Wireless World* dated April 14th will be on sale on Thursday, April 13th.

Small advertisements intended for the issue of April 21st should reach the Advertisement Office not later than first post on April 13th.

WIRELESS FOR POLICE HUNTS. A new Marconi six-valve side-control receiver specially designed for the needs of police motor-cycle patrols.

German Radio Census

BETWEEN 5 and 6 per cent. of wireless receivers in Germany are crystal detectors, according to the recent German radio census, which indicates that crystal sets reach a maximum of 10 per cent. in Bavaria, where there is a large number of local stations. About 6 per cent. of listeners use sets with from one to three valves.

C.A.C. Cabinets

A NEW company has been formed as a subsidiary to the City Accumulator Co., Ltd., under the style of C.A.C. Cabinets, Ltd., to take over the old-established business of Mr. F. W. Edwards, of 15, Clerkenwell Green, London, E.C.1, who has for many years specialised in the manufacture of radio cabinets. The address of the parent company is Angel Court, 173, Strand, London, W.C.2.

Handicapping the Criminal

THE American Congress is considering a Bill requiring special permits for motor car radio sets which are capable of tuning in the short wave police messages. There is no ban on the public reception of these messages so long as the information is not used for criminal purposes. The Bill emphasises that criminal use of wireless is illegal.

City of London Signals

THE Earl of Stanhope, Under-Secretary of State for War, laid the foundation stone of the new H.Q. of the City of London Signals on Saturday, March 25th. The headquarters are situated in Clapham Park, and will probably be completed by September, 1933. The building is designed to be the headquarters of units whose establishment is over 700 men.

A public address unit was kindly lent for the occasion by the Edison Swan Electric Co., Ltd.

Propaganda Transmissions from Berlin

ON Saturday last, the new German Propaganda Department opened its new radio campaign with regular programmes from 12 midnight to 2 a.m. G.M.T. from the short wave station at Zeesen. These special broadcasts are stated to be for Germans living abroad and it is understood that America is one of the important objectives. A Washington correspondent, however, informs us that it is unlikely that the big networks would distribute talks which were obviously in the nature of propaganda.

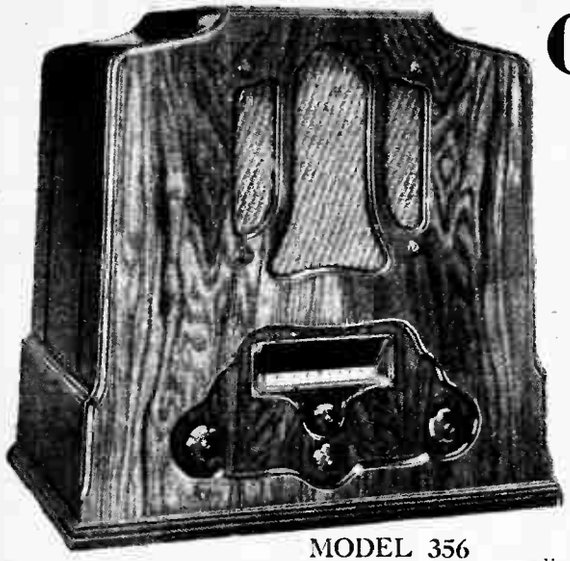
Dr. Kurt Rathke is in charge of the new service.

America's Wavelength Troubles

WHILE Europeans await the Lucerne Conference with impatience, it is consoling, perhaps, to remember that America has wavelength troubles of her own. This month a "North American Wavelength Conference" is to be held in Mexico City with the object of deciding the allocation of a limited number of wavelengths to the United States, Canada, Mexico and Cuba.

Within the United States quarrels have arisen between broadcasters seeking more of the longer wavelengths, i.e., above 550 metres (writes our Washington correspondent), and the Navy and shipping interests who claim these wavelengths for their own purposes.

It is felt that unless American broadcasters can secure at least thirteen additional waves, Mexico and Cuba may be compelled to use waves already in use in the United States. America hopes that Mexico will be induced to take the long waves; there are only some 250,000 radio sets in all Mexico, and it is argued that it should be a simple matter for Mexican citizens to adapt themselves to tuning on the long waves.



MODEL 356

Columbia "Superhet Seven

Full Tone and Quiet Background with Good Range and Selectivity

FEATURES.

General.—*Self-contained table model superheterodyne. Six stages and rectifier. Moving-coil loud speaker. Provision for gramophone pick-up and extra loud speaker.*

Circuit.—*Variable-mu H.F. amplifier—S.G. anode bend first detector—Oscillator—Variable-mu I.F. amplifier—Triode anode bend second detector—Triode output valve—Full-wave valve rectifier.*

Controls.—*(1) Main tuning with rotating self-indicating dial calibrated in wavelengths. (2) Combined radio and gramo. volume control. (3) Wave-range and on-off switch. (4) Tone control.*

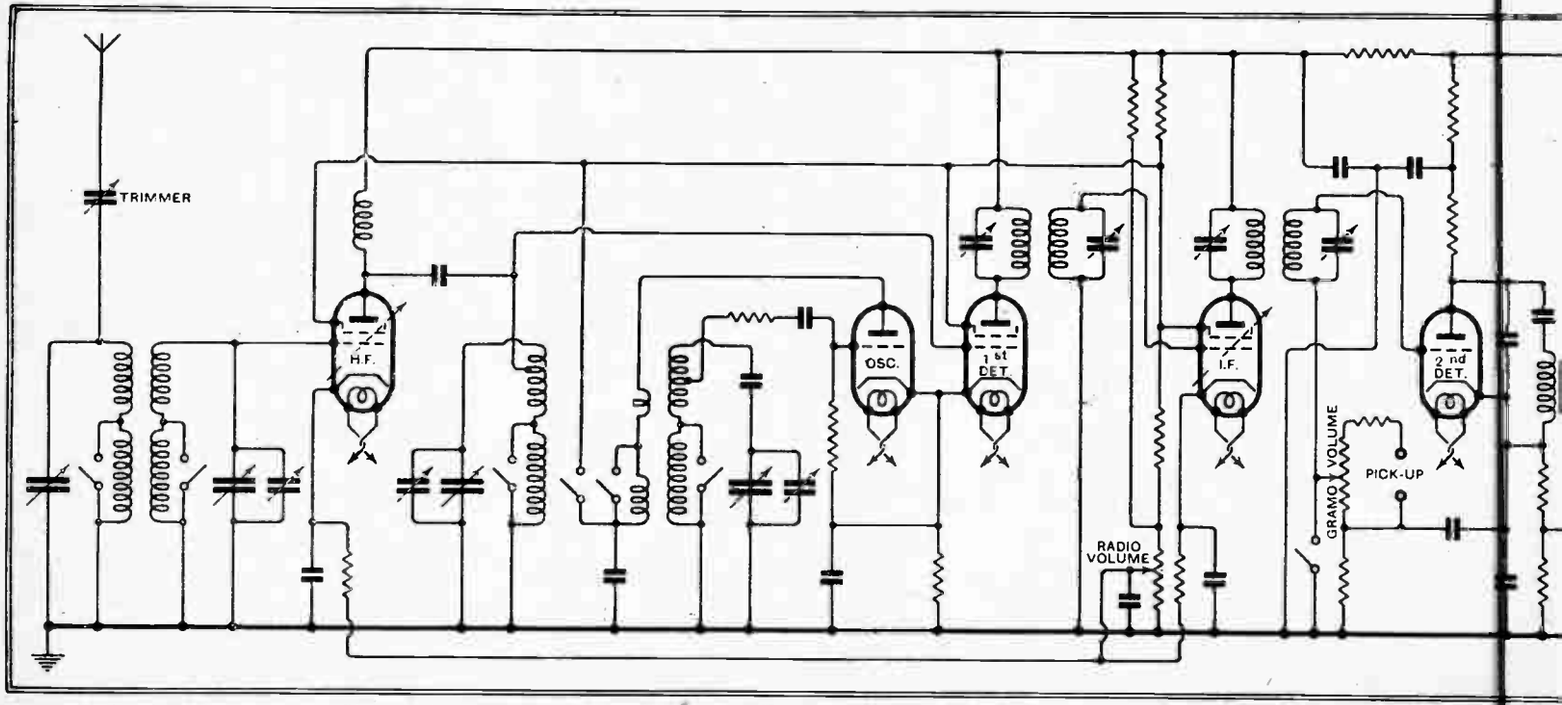
Price.—*21 guineas.* ***Makers.***—*The Columbia Graphophone Co. Ltd., 98-108, Clerkenwell Road, London, E.C.1.*

THE circuit diagram of this six-valve superheterodyne receiver (seven valves with rectifier) reveals that while the general design is simple and straightforward, we may expect a certain refinement of performance as a result of attention to numerous small details. Starting with the aerial circuit we find that a small pre-set series condenser is provided in order that the first tuned circuit may be accurately aligned with the remainder for the particular aerial with which the receiver is to be used. The coupling in the two circuit aerial tuner cannot conveniently be shown in the diagram, as it consists solely of magnetic coupling between the coils. It is controlled by adjusting the distance between the coils on a common former to give the band width necessary for maximum selectivity with good quality. The signal frequency amplifying valve is of the variable mu type and is coupled to the first detector by means of a parallel-fed tuned grid circuit. The output from the oscillator is coupled to this tuned grid circuit, and, as in the case of the aerial circuit, correct coupling has been obtained by adjusting the distance between the appropriate coils, which are mounted on the same former. It will be noticed that a switch contact has been inserted in the H.T. supply to the oscillator valve. This works in conjunction with the contacts changing the circuit for gramophone reproduction, and ensures that there shall be no infiltration of radio signals under these conditions. The first detector is of the anode bend type, and a screen-grid valve has been used in this stage. The I.F. amplifier is a screen-grid valve of variable-mu type, and is associated with two band-pass filters. The radio volume control operates by increasing the negative grid potential of the I.F. and signal frequency H.F. valves, and it is for this reason that variable-mu valves have been specified for both these stages.

Anode bend rectification has again been adopted for the second detector which is, however, of the triode type. The grid bias is automatically reduced when the circuit is arranged for gramophone reproduction, and a separate volume control potentiometer has been provided for the pick-up. The controls are simplified, however, by ganging the radio and gramo. volume controls mechanically. The coupling between the detector and output valve is through a filter-fed L.F. transformer across the secondary of which is connected the tone control circuit, consisting of a fixed condenser and variable resistance in series. It is interesting to note that a triode output valve is used and, judging by the power handling capacity and quality of reproduction the choice has been a wise one.

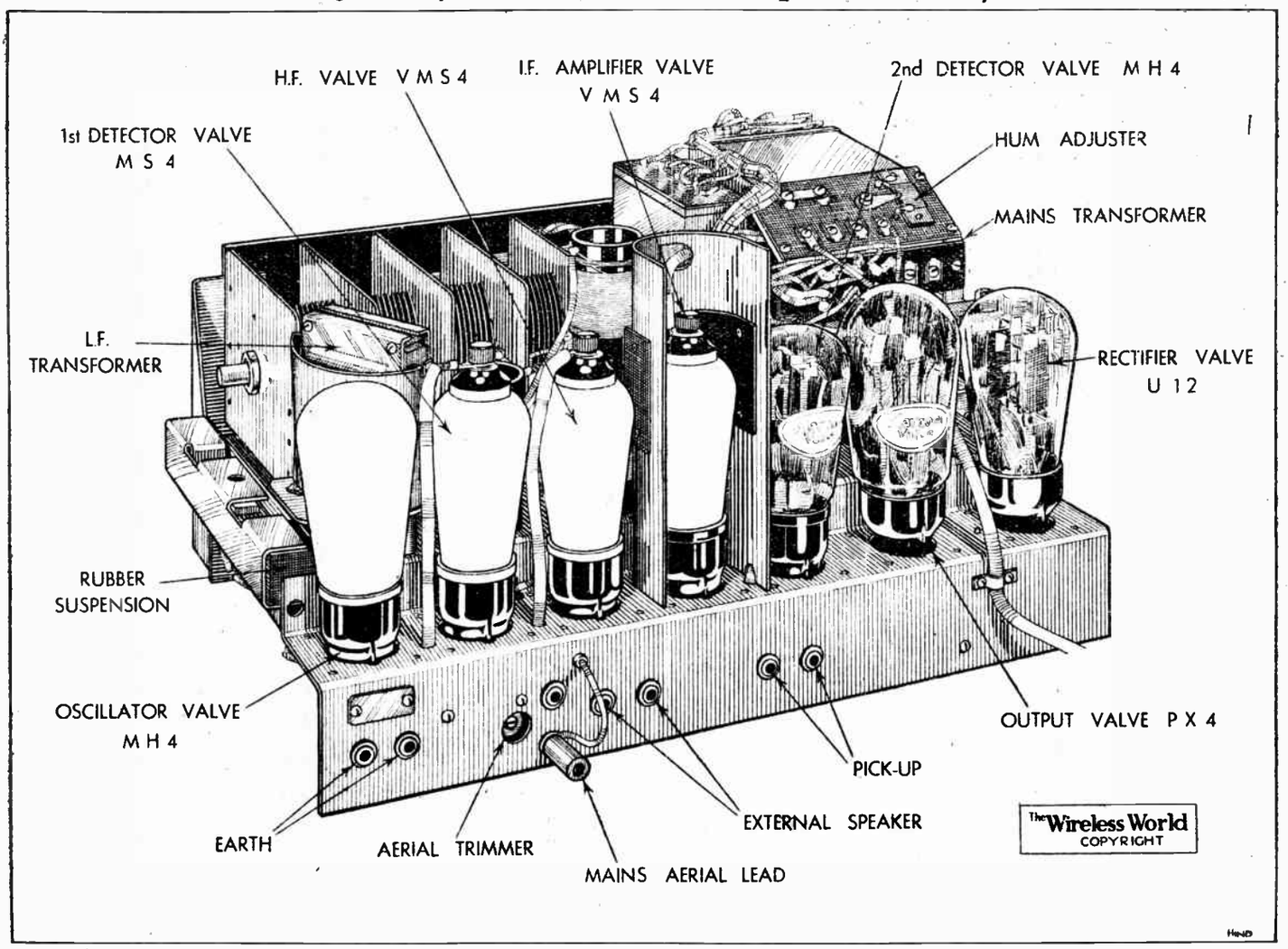
Performance on Test

The moving coil loud speaker is of the energised type, and the field is connected through a series resistance in parallel with the main H.T. supply, so that the inductance of the speaker field is not used for smoothing. Extra terminals are provided for connecting additional low resistance moving coil speakers in parallel with the internal loud speaker, and it will be observed that one of the contacts on the main wave-range switch has been connected across the speech coil at S to short-circuit the coil while the switch is in operation. The power supply circuit employs a full wave



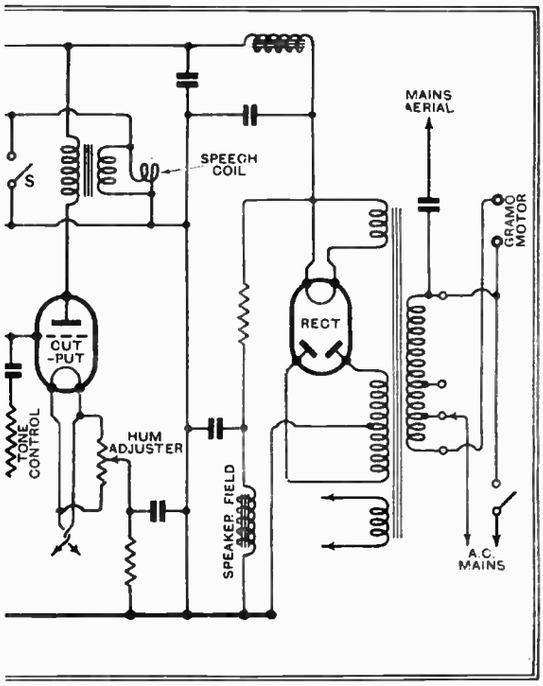
Schematic circuit diagram. Switch contacts are provided to short-circuit the loud speaker while the wave-range switch is in operation and to switch

A Quality Table Model Superheterodyne



The chassis is mounted inside the cabinet on rubber shock absorbers.

valve rectifier, and terminals are provided for the connection of an electric gramophone motor. These are fitted to a platform on the mains transformer, which is of exceptionally generous design. On the same mounting is to be found the hum adjuster, which is accessibly placed, and consists of a pre-set potentiometer across the filament of the P.X.4 output valve.



the oscillator when reproducing gramophone records.

The chassis is substantially made and is suspended on rubber buffers on each side of the cabinet. Clamping screws are provided to prevent undue movement during transit, and it is important to remove these from the underside of the cabinet before putting the set into commission. A colour code is employed for the terminal sockets, and a key to the arrangement adopted is given in the instruction book. The connections to the loud speaker are through a multiple cable, and spade terminals are used, thus obviating the necessity of using a soldering iron in order to remove the chassis from the cabinet.

Speech is natural, provided the volume is not excessive. The horizontal tuning scales are marked on the sides of a square section rod which is automatically turned to show the appropriate scale by gearing associated with the wave-range switch. The main tuning control drives the gang condenser through an endless cord, giving just the right reduction. Immediately below is the tone control, while the combined radio and gramo. volume control is on the left, and the wave-range switch on the right.

On test the set gave all the range and sensitivity one would expect from a six-valve circuit. In other words, any worth-while station could be received on either wave-band. The selectivity in Central London was sufficient to permit the reception of stations on adjacent channels to the two Brookmans Park transmitters, and when the set was again tested within five miles of the London stations, only one station was lost on either side of each of the local stations. We were particularly impressed with the absence of heterodyne whistles, and it was only when working near to the high-power transmitters that any second channel interference could be detected. In Central London no trace of this type of interference was found. A certain amount of mush was experienced when listening to distant stations with the tone control in the extreme high position, but this control was found invaluable in improving the general quality of foreign stations while, when listening to the B.B.C. transmissions, full advantage could be taken of the excellent response in the higher frequencies.

The hum level is normal, and the set is very smooth and pleasant to handle. There is no automatic volume control, but any overloading results in a reduction of signal strength, so that one's nerves are never strained by sudden and unexpected noises. The quality of reproduction is pleasing, being full and round.

UNBIASED

By

FREE GRID

Clash in Soho

IT is a frequent habit of mine to repair to Soho for dinner after the day's toil in order to get into that restful atmosphere which one associates with the Continent. I regret to say, however, that I have had to shift my dinner headquarters, temporarily at any rate, as the result of strained relations, not conducive to my peace of mind, which have arisen in the thoroughfare which I usually frequent.

Almost opposite the French restaurant which I often visit is an Italian establishment. There has never been exactly an *entente cordiale* between the two proprietors, and I fear that wireless, in spite of the B.B.C.'s motto of "Nation shall speak peace unto Nation," has caused matters to develop into open warfare.

Recently the descendant of the mighty Cæsars installed an outsize in superhets in order to listen to the emanations of his native Napoli. Unfortunately, the six-watt output of his installation penetrated across the road to the "Au Cochon Gros."

Whether it was malice aforethought or merely pure coincidence I cannot say, but not long afterwards a large neon sign, *without* interference suppressors, outlining the figure of a grossly overfed pig, appeared in glaring insolence over the French doorway.

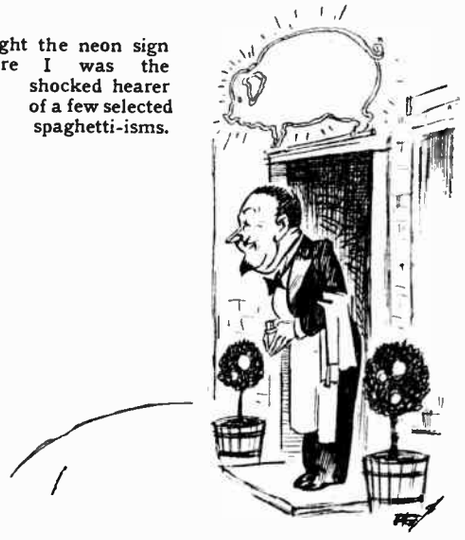
Sitting in the latter establishment on the night that the neon sign opened fire, I was the shocked hearer of the few selected spaghetti-isms forming the opening fusillade of a verbal battle which developed later in the evening. At present, therefore, you will find me in the "Retrete Castellano" round the corner.

Electric Piano Development

THE brief technical description of the "Neo-Bechstein" electrical piano given recently in *Wireless World* interested me specially, as it is so similar to the instrument which I myself described over a year ago (Feb. 24th, 1932). However, I could not help thinking that the instrument which I was privileged to see and hear is still the better one, as each individual string has its own electric-magnet, instead of there being five strings to each magnet, as in the newer instrument.

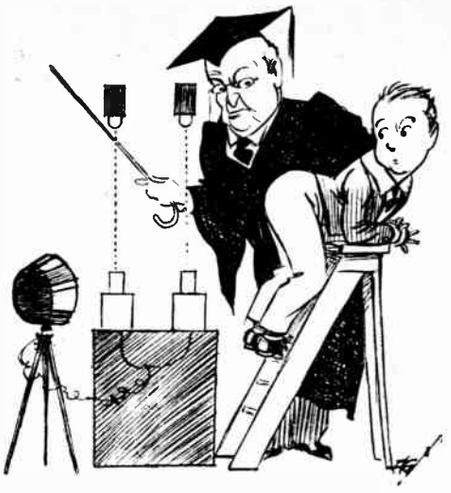
At any rate, I was sufficiently interested to write to the people in the Fatherland who are sponsoring the earlier type in order to learn of any later developments. It has, I hear, been considerably improved in many details, and advantage has been taken of an entirely novel principle to permit purchasers to have one of these pianos in their house and to hear the leading pianists playing upon it, in addition to its being used as an ordinary electrical piano.

To explain matters, I must remind readers that each string, by vibrating within the field of an electro-magnet, creates a sympathetically varying electrical current, which is fed into an amplifier. Normally, the output of the amplifier is fed into a loud speaker, but if, instead, it is connected up to a similar piano situated in the next room or the next street, then this second piano will reproduce anything played on the first one. The reason is that, in the case of the second piano, the electro-magnets, being fed with electrical energy, will obviously set their associated strings into mechanical vibration, each string vibrating at its natural frequency, and so producing its own characteristic musical sound.



On the night the neon sign opened fire I was the shocked hearer of a few selected spaghetti-isms.

It is therefore proposed to wire-up houses and supply each subscriber with an electrical piano of this type, which he can either play himself or "plug in" and hear the efforts of a leading pianist at the studio in the headquarters of the company. There is only one slight technical snag which has to be overcome before the service is put into operation. If any disgruntled subscriber is fed up with too much Bach or Irving Berlin, as the case may be, he can completely wreck the performance by playing five-finger exercises, so causing his instrument to act as a transmitter. If any reader can suggest means of overcoming this trouble there is, I feel sure, a small fortune awaiting him.



Gauging the vigour

Photo "Sell" at Science Museum

ALTHOUGH a very interested visitor the other day at the special "photo-electric" cell exhibition at the Science Museum, I was disappointed to note the omission of several quite commonplace applications of this interesting scientific device.

To mention but one, the automatic automobile speed trap was not in evidence. This device is intended for trapping lorries which do over 30 m.p.h., especially at night. It consists virtually of two photo-cell posts situated a mile apart. If less than two minutes has elapsed between the cutting of the first and second rays, a relay is operated which takes a flashlight photograph of the offending lorry, a summons being duly served at the address indicated by the motor number, while an enlarged photo of the driver is sent to the National Portrait Gallery.

The exposed films are collected from the various posts by the mobile police every day. Of course, many ordinary cars to which the speed limit does not apply are "caught," but the films are not wasted, as many instances of dangerous driving are thus revealed.

Another application not shown was the "schoolmaster's friend"—a device used to enable a master to ascertain the strength of his blows. The apparatus is so arranged that the cane cuts two photo-cell beams before reaching its destination.

Since the cane diameter is known, it is obvious that the speed of the cane—and, therefore, the force of the blow—can be calculated. Actually, of course, this calculation is done by the machine, and the results are dialed accordingly, the administrator of justice thus being able to gauge the vigour necessary for successive blows.

Screened Aerial Down-leads

How Losses are Minimised by Impedance Matching

AS electrical appliances are so widely used in America, "man-made static" is naturally a serious bar to enjoyable broadcast reception in that country. Of all the remedial measures that may be applied at the receiving end, American engineers have found that a properly screened aerial down-lead is the most efficacious. Losses normally introduced by shielding are avoided by fitting impedance-matching transformers.

ALTHOUGH locally generated interference is undoubtedly becoming more serious, due to the constant extension of electrical supply systems, the main reason why it is giving more and more trouble is that the sensitivity of our receivers is being steadily increased. Another contributory cause is the greater high-frequency response of the better-class modern set, which is more susceptible to certain types of interference than earlier types which embraced a narrower band of audio-frequencies. This can be demonstrated by reducing the high-note response of a receiver fitted with tone control; more often than not, electrical interference will be noticeably reduced by this procedure.

Very rightly, the listening public are beginning to insist upon quiet and uninterrupted reception, and the various causes of induced interference are gradually being overcome. These troubles are even more prevalent in the United States than in this country, and, according to a paper recently read before the Radio Club of America by C. E. Brigham, Chief Engineer of Kolster

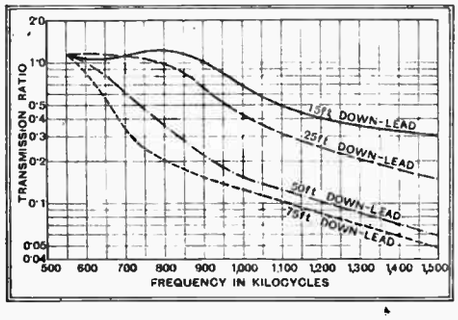


Fig. 1.—How signal strength is reduced by ordinary screened down-leads of different lengths. These curves were taken with a receiver having a low-impedance input circuit (comparable to the majority of British sets).

Radio, investigations show that the majority of noise interference is now introduced into typical sets through the aerial down-lead. Some useful and practical information is given on the subject of reducing interference by shielding these leads, and—of equal importance—means of overcoming the loss of sensitivity that is generally brought about by this form of screening are described.

It is emphasised that the partially shielded aerial must be efficient, and the unshielded portion must be erected well clear of the source of interference, and at least 30 feet above surrounding obstacles; care should be taken to see that the horizontal span is mounted at right angles to, and as far as possible from, overhead power and telephone lines.

In America it is customary to use for shielded down-leads an ordinary metal-braided cable with quite a high self-capacity, and apparently with considerable dielectric losses. The low-capacity,

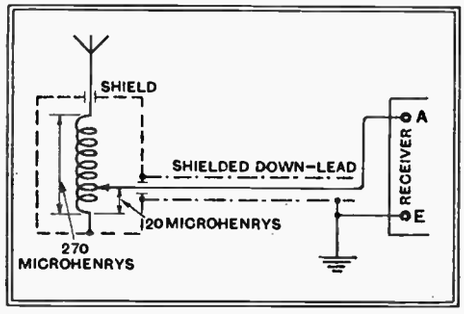


Fig. 2.—Attenuation may be reduced by fitting a step-down auto-transformer between aerial and shielded down-lead.

low-loss cable, which has been introduced for the purpose in this country and on the Continent, does not seem to be widely used. As a consequence, special precautions to avoid the losses which would normally occur have to be taken, and the down-lead is often converted into a low-impedance transmission line, which is not subject to inductive interference, and in which there is very little loss of signal strength when impedances are properly matched.

The Simplest Impedance-matching System

Without special precautions, the loss in sensitivity is found to increase more or less in proportion to the length of the down-lead, as shown in Fig. 1. This diagram shows that losses also increase with frequency; the loss is estimated as a "transmission ratio," by which is implied the ratio of the sensitivity in microvolts, as

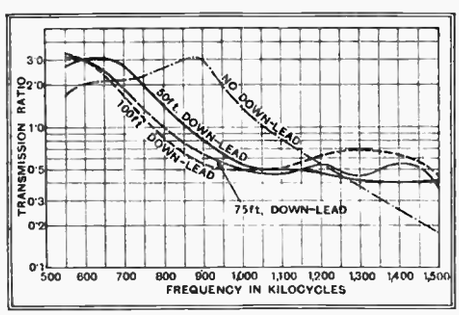


Fig. 3.—Effect of fitting a transformer as shown in Fig. 2. (Low-impedance receiver.)

measured across the aerial and earth terminals of the receiver, to the sensitivity measured across aerial and earth at the remote end of the transmission line.

The simplest method suggested for reducing these losses is shown diagrammatically in Fig. 2, where the aerial is linked to the transmission line by means of a step-down auto-transformer. This transformer is enclosed in an earthed metallic shield, which must be weather-proof, as it is mounted at the top end of the down-lead.

Where Losses Occur

As a result of adding this single impedance-matching transformer, sensitivity is improved to the extent shown graphically in Figs. 3 and 4. The first graph relates to a receiver with a low impedance input, which is defined as one having an aerial circuit coupled to the first tuned H.F. circuit by means of an inductance of 10 to 50 microhenrys, resonating above 1,500 kc. Fig. 4 relates to a receiver in which the aerial is coupled through a high-impedance inductance of some 3 millihenrys, resonat-

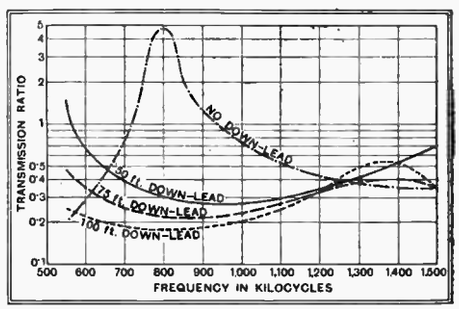


Fig. 4.—With a receiver having a high-impedance input, the arrangement shown in Fig. 2 is rather less effective.

ing considerably below the broadcast band. Loss is greatest with a high-impedance input, and is due both to the by-passing effect of the shielded lead and to mis-matching of the impedances between the low-impedance side of the auto-transformer and the high-impedance input circuit of the set.

A more ambitious and effective arrangement, employing both step-up and step-down auto-transformers for matching purposes, is shown in Fig. 5. The improvement brought about by this scheme is shown graphically in Fig. 6. It is interesting to observe that one of the curves in this figure relates to a 400ft. transmission line; this suggests the possibility of

Screened Aerial Down-leads.—erecting the aerial at a very considerable distance from the source of interference without incurring an intolerable loss.

Still another method of obtaining correct impedance matching between aerial and receiver over a transmission line is illustrated in Fig. 7. Here double-wound transformers are fitted at the input and output ends of the transmission line, and are connected together by means of twin shielded cable. The efficiency of this system is stated to be sensibly the same as that shown in Fig. 5; it would therefore appear that the need for a twin conductor is hardly justified, although it may confer more complete immunity from inductive interference.

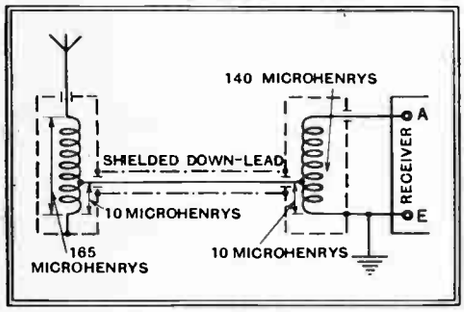


Fig. 5.—How step-down and step-up auto-transformers are fitted at each end of the screened transmission line (or down-lead) for matching purposes.

Although these systems are designed for use with high-capacity, high-loss cable, they would of course be applicable to the more efficient type of aerial down-lead; with this the need for accurate matching would not be so critical.

The terms "screened down-lead" and "transmission line" have been used indifferently, but it is worth while to point out that in certain circumstances, where the aerial is remote from the building, it is quite possible that the screened conductor will be installed more or less horizontally, the vertical down-lead being unshielded.

Two-waveband Problems

Effective earthing of the down-lead shield is found to be of great importance. A poor connection may result in failure of the screening to eliminate noises, and, generally speaking, a water-pipe "earth" has been found best. A long transmission line should be earthed at several points.

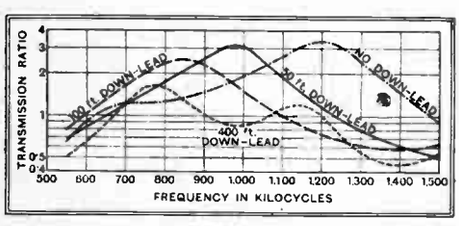


Fig. 6.—By using the impedance-matching scheme shown in Fig. 5 losses are greatly reduced.

In the matter of eliminating interference pick-up on the aerial down-lead, the American listener is particularly fortunate, for the reason that in almost every case he has to concern himself with only a single waveband. British and continental listeners who adopt the matched transmission line principle will probably find it necessary to do the same; at any rate, it is difficult to see an easy way of devising a coupling system that will be effective on both medium and long wavebands. Switching of the remote step-down transformer, which might be mounted at the top of an aerial mast, would clearly be impossible.

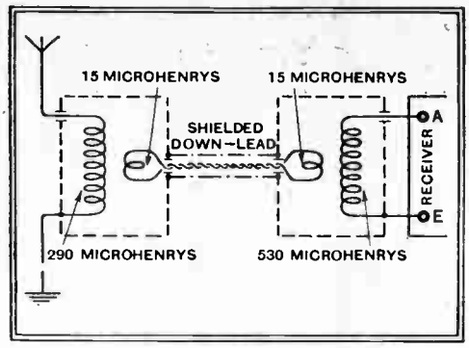


Fig. 7.—A matching circuit comparable with that of Fig. 5, but with double-wound transformers.

For the experimenter, the system shown in Fig. 5 is probably the most attractive, if only for the reason that the coils used have roughly the inductance values of the ordinary screened medium-wave broadcast coil. The tapping points to suit existing conditions may be determined by trial, and will in any case be spaced only by some two to five turns from the ends of the windings.

DISTANT RECEPTION NOTES

ON several occasions in the past I have referred to the extraordinarily good reception that was obtainable from the Ecole Supérieure (PTT) station in Paris working on a wavelength of 447.1 metres. I suggested then that its transmissions were received at a strength which implied a great deal more than the mere three-quarters of a kilowatt with which the station was officially credited. Readers may have noticed that for some weeks now *The Wireless World* list of stations has correctly shown the output rating of Ecole Supérieure as 7 kilowatts, though in others it may still appear as a fraction of a kilowatt.

Except at odd times the Ecole Supérieure is no longer to be received clear of interference. The 20-kilowatt Madona station in Latvia appears to have settled down to a wavelength of 450.3 metres, which means that the frequency separation between it and the Ecole Supérieure is only 5 kilocycles. There is, therefore, as a rule a distressing heterodyne whistle on both transmissions. Madona itself is, of course, interfered with on the other side by the family of no fewer than nine stations which transmit on the common 453.2-metre wavelength which is separated from Madona's by only 4 kilocycles.

In the matter of broadcasting services Paris must be by far and away the best provided city on this side of the Atlantic. Enough is proverbially as good as a feast, and, in view of the terribly overcrowded state of the long and medium wavebands, it is difficult to see why Paris should require (1) the 75-kilowatt Radio-Paris, (2) the 13-kilowatt Eiffel Tower, (3) the now 7-kilowatt Ecole Supérieure, (4) the 0.8-kilowatt Radio LL, (5) the 60-kilowatt Poste Parisien, and (6) the 0.7-kilowatt Radio Vitus.

A week or two ago I referred to the terrible heterodyne which had completely ruined the transmissions of Huizen (Hilversum programmes) on certain occasions, and suggested tentatively that this might be due to either Kaunas or Lahti. A correspondent tells me that he identified the offending transmission as coming from Moscow; it must, therefore, have been the new 500-kilowatt station at work. I have not heard it since, and I certainly do not want to within the limits of either the medium or the long waveband, for it is sure to play havoc if it uses a wavelength in either of them.

Signal weakness has been observed on several of the long-wave stations in the daytime, those largely affected being Motala, Kalundborg, and Oslo. In the evenings these stations are well heard, whilst Huizen, Radio-Paris, and Zeesen can be received at any time when they are working.

Heterodynes are still rather troublesome on the medium waveband, though luckily it is only on occasional nights that the stations best worth hearing are affected. Recent sufferers have been Poste Parisien, Trieste, and Katowice. Nürnberg on 238.9 metres is now well worth attention. This station relays Munich, and it is an excellent stand-by for these programmes should the parent station be interfered with. Hörby is surprisingly strong just now, and Göteborg is well heard. Thoroughly reliable medium-wave stations are Munich, Stockholm, Rome, Leipzig, Toulouse, Milan, Heilsberg, Hilversum (Huizen programmes), and Brussels No. 1. Budapest and Brno should both be tried for, as on many evenings excellent reproduction is obtainable from them.

D. EXER.

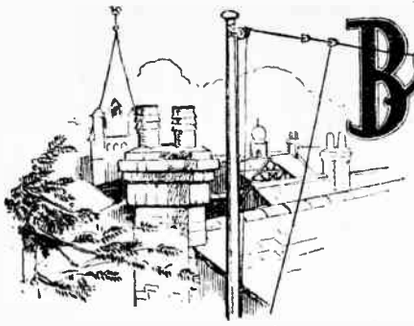
BLUE PRINTS

As mentioned elsewhere in this issue, blue prints for the Class "B" Ferrocart Receiver are available. In addition, blue prints, price 1s. 6d. post free, are available for the following:—

Autotone. (February 24th, March 2nd and 9th, 1932.)
Monodial A.C. Super. (Booklet, price 1s. 8d. post free.)
Modern Straight Five. (June 22nd and 29th, 1932.)
Baby Superhet, A.C. (August 19th and September 2nd, 1932.)
Baby Superhet, Battery. (October 7th, 1932.)
Short Wave Two. (November 4th and December 23rd, 1932.)
Monodial D.C. Super. (December 2nd and 9th, 1932.)
Straight Three. (December 16th, 1932.)
Modern D.C. Three. (December 30th, 1932, and January 6th, 1933.)
All-wave Monodial Super. (January 27th and February 10th, 1933.)
Modern A.C. Quality Amplifier. (February 17th, 1933.)
Ferrocart III. (February 24th and March 3rd, 1933.)
* **A.V.C. Monodial Super.** (March 17th and 24th, 1933.)

* Price of this blue print is 2/-.

These can be obtained, from the Publishers, Iliffe & Sons, Ltd., Dorset House, Tudor Street, London, E.C.4.



Broadcast Brevities

By Our Special Correspondent

Good-bye to Gloucester

THE shutters will be put up for the last time on Sunday next at the B.B.C.'s Gloucester Repeater Station, which has served the West of England public faithfully and well for the last six years. The work will be taken over on Monday by the new Bristol H.Q. of the B.B.C. in Whiteladies' Road.

The Men in Charge

The actual job of maintaining a repeater station is unexciting, everything being practically automatic, but the man-in-charge must keep a watchful eye on the behaviour on the correction circuits and amplifying valves. The Gloucester station is in the charge of an engineer and three assistants. There is an almost similar installation at Leeds.

Public Television Programmes ?

ISN'T it time that the general public had an opportunity to see the television programmes? There are some very fine features in these nightly transmissions on 261.6 metres, and I know of many people who would gladly pay a small fee to witness a demonstration which would enable them to decide whether to purchase a televisor.

Screen in the Concert Hall

At present the B.B.C. has a special demonstration televisor in one of the Press listening rooms at Broadcasting House, but the general public are not admitted. Why not install a television screen in the Concert Hall and admit the public at cinema prices? I am sure the Hall would be thronged, even at 11 p.m. If you would like to support an appeal for such a facility, send me a postcard.

Cutting Out the Quartet

THE German political upheaval has not greatly affected the broadcast programmes so far as the British listener can observe. But conditions over there were brought home to the B.B.C. last week, when the Reichs Rundfunk was compelled to cancel the arrangement for relaying the Amar Quartet Chamber Concert. At the last minute, it appears, orders came for a Government transmission, and all previous programme arrangements went by the board.

Within the Citadel

PEOPLE have been speculating at Broadcasting House on how long the place could withstand a siege. Those who contend that the attackers would eventually give up in despair, despite the cocktail bar in the near-by Langham Hotel, point out that, among other advantages, there is a threefold lighting supply. In addition to the ordinary borough supply, the B.B.C. can use a special private power line from the generating station. Besides this there are generators in the basement capable of lighting all the studios.

Water is available from the artesian well beneath the building.

Network of Lines

If the line to Brookmans Park were cut, programmes could still go out from Daventry, which is connected to Broadcasting House by several routes..

It is a good thing that Broadcasting House is so safe, considering some of those recent variety turns.

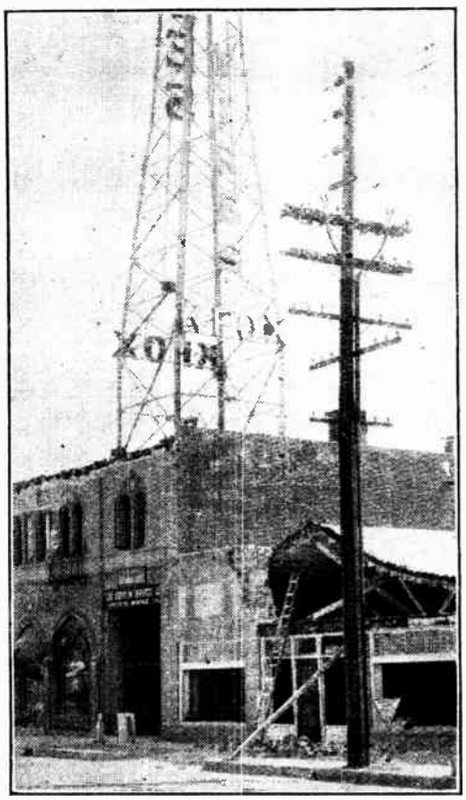
Variety and Entertainment

Talking of variety, it is now possible that Mr. Eric Maschwitz may postpone taking over the control of this feature until September, instead of May, as was originally stated. According to the latest information, there are to be two new appointments in connection with the gayer side of the Corporation's activities. Mr. Roger Eckersley may become "Director of Entertainment," and Mr. Maschwitz "Director of Variety."

I foresee some dangerous clashes if the two Chiefs fail to guard against entertainment creeping into Variety and *vice versa*. Past success must not make for overconfidence in this respect.

Recording Programmes at Home

I WONDER whether any listener, wishing to hear a special programme on a night when he had an outdoor engagement, has considered doing a little blattnerphoning or dictaphoning on his own account? One could spend many a pleasant hour planning a device which would switch on set and dictaphone simultaneously at, say, 8 p.m. for the Buggins' turn or the first movement of a Queen's Hall symphony. The record could be played over at leisure.



A REAL BREAKDOWN. B.B.C. stations are spared such calamities as befell KFOX Long Beach in the heart of the Californian earthquake zone. The photograph indicates that the mast and near-by telegraph poles withstood the shocks better than the building.

Ban on Press Records

The P.M.G. has just informed the "Newspaper World" that "the connection for Press purposes of a dictaphone with a loud speaker used for wireless reception would not be approved," but I believe that a home listener is allowed to use a dictaphone so long as no outside use is made of the record.

Broadcasting an Edgar Wallace Thriller

AN opportunity arose for the B.B.C. to secure simultaneously the rights of "The Ringer," by Edgar Wallace, and the services of Constance Cummings, the American film artist. The Productions Director has therefore decided to postpone the presentation of Horace Annesley Vachell's comedy, "Quinneys," and to substitute for it on April 19th (Regional) and 21st (National) Edgar Wallace's thriller. This will be the first broadcast performance of an Edgar Wallace play, and the first appearance in a leading part in a radio play of a film "star."

All About "Talkies"

MR. CECIL LEWIS, former programme chief of the B.B.C., returns to the studio on April 21st for the first of a series of film talks which he is to broadcast in the interval between the production of "talkies" at Elstree. Having worked for several years at picture-making, including the direction of three of his own films, he will be able to reveal to listeners the secrets of film-making.

Anticipation and . . .

STAFF arrangements at Broadcasting House and the rumours of a "general post" are still a fruitful topic of discussion in Portland Place.

Everything looked bright and happy. An increase of upwards of £150,000 over last year in respect of new licences, a magnanimous gift of another quarter of a million to the State funds, and University honours for Sir John himself, led the staff to expect something good in this month of April, which opens the B.B.C. new financial year.

. . . Realisation

BUT rises have not materialised on anything like the scale expected. Very keen disappointment is felt in many quarters. The introduction of the bonus idea has been a clever move; a rise in salary is, of course, recurrent, but a bonus equivalent to a year's rise need never recur. At the same time, the bonus need not figure on the salary sheets!

Correspondence

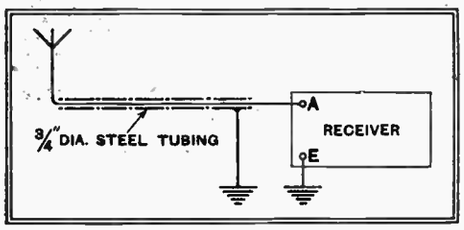
The Editor does not hold himself responsible for the opinions of his correspondents.

Correspondence should be addressed to the Editor, "The Wireless World," Dorset House, Tudor Street, E.C.4, and must be accompanied by the writer's name and address.

Tubular Aerial Shield

BEING in the unenviable position of having to demonstrate highly efficient radio receivers in an area where electrical interference produced by motors, rectifiers, etc., is present, I have had to do some very serious experimental work in attempting to eliminate a great deal of this interference at the receiving end.

Perhaps your readers will be interested in an aerial system, shown in the accompanying diagram, which has enabled me to reduce interference to such a degree that I can demonstrate a highly sensitive all-mains receiver without apparent background.



The above differs from the aerial system advocated by the G.P.O.; the use of lead-sheathed wire, I find, is not so efficient at shielding as steel tubing, which does not reduce signal strength greatly.

Again, it is better to use two *good* earths, one from the receiver, the other from the shielding of the lead-in.

I am sure any reader who suffers greatly from interference will find the above well worth a trial.

King's Lynn. WM. SMURDEN.

Interference

I AM sure I am expressing the thanks of a good many listeners for your untiring efforts to bring about some sort of legislation for the suppression of interference caused by electrical machinery.

In this connection, may I just add that it is imperative for the motor car manufacturers to do something about fitting anti-interference devices to car ignition systems. The objectionable interference caused on the short and ultra short wave bands is so great that in many instances satisfactory reception is impossible.

If something is done now, we might, by the time the ultra short wave broadcasts come into general use, have interference-free reception.

LEOPOLD B. FRIEDMAN.

London, W.C.1.

I HAVE been very interested in the correspondence published some time ago on the subject of interference by Morse, and I agree with your correspondents that there is still great room for improvement.

Some years ago the Post Office very kindly investigated a complaint of mine that Midland Regional (then on 480 metres) was ruined by Morse, and I gathered that this was due to a French Coastal Station working off its allotted wavelength. But I have still to identify the individual who can cut through anywhere on the medium wave band. On Saturday, January 7th, he was plainly audible on London Regional even from 9.50 to 10.0 p.m., almost spoiling the News Bulletin.

It is exasperating to build such fine sets as the Monodial Super and then be compelled to restrict their use to the two local transmissions. I feel convinced something could be done if enough pressure were brought to bear on the offenders by the Post Office.

J. R. H. WHISTON.

Belvedere, Kent.

A.V.C. and the Monodial

WITH reference to your recent article on the conversion of the Monodial superheterodyne. As a constant reader of over ten years' standing I feel compelled to write a few words of appreciation of the article. The Monodial is unquestionably far and away the best receiver I have handled that has been described in the Press, and its unrivalled popularity is well merited. The point that appeals to me, and will, I know, appeal to a great number of readers of the article referred to, is the candid description of the conversion, the economy in cost and new parts recommended, and, finally, the straightforward manner in which the whole conversion is laid out.

The policy adopted by some of constantly suggesting to the public the advisability of constructing entirely new receivers with new apparatus in order to obtain up-to-date, efficient reception on the smallest technical grounds is open to serious criticism.

Please accept my very sincere appreciation.

H. ASHLEY-SCARLETT, Lt.-Col.,
President, Golders Green and Hendon Radio Scientific Society.

Frequency Tests

THE frequency test carried out during an evening talk some while ago from the B.B.C. emphasised the acceptability of these tests being given fairly frequently.

The B.B.C. has implied that any serious amateur should be able to construct an oscillator for his own use, but many amateurs have limited time to devote to their apparatus, to say nothing of the expense of an oscillator to give constancy.

I wonder if many of your readers are aware that, if they possess fairly sensitive sets and are situated within 15 to 20 miles of Brookmans Park, they can sometimes pick up a carrier from one of the twin transmitters upon which a frequency test is carried out? This has taken place between 9.30 a.m. and 10.0 a.m. on some mornings and apparently emanates from tests by the engineers at Brookmans Park, but not radiated by the main aerial, but from the feeders or some part of the H.F. equipment. Surely these could be radiated at full power? A. E. RUSSELL.

London, S.E.18.

Non-inductive Condensers

WE note with interest your article in the March 3rd issue on "Inductive and Non-inductive Condensers." We should like to add that it is important to use the shortest possible length of wire to the terminals of a non-inductive condenser if the circuit requires this characteristic. It is useless to use a non-inductive condenser with two or three inches of wire to the terminals, since the improved characteristics of a non-inductive condenser over the normal type would be quite lost.

During the last three years all our Type 50 condensers have been made non-inductively, and there must be a very large number of this type in the hands of constructors. Should any of your readers be in doubt as to which type they have, namely, inductive or non-inductive, we shall be very pleased to let them know how the different types may be identified.

H. W. COLE,
Assistant Manager, The Telegraph Condenser Co., Ltd.

London, W.3.

In Next Week's Issue :—

CLASS "B" ELIMINATOR

An A.C. mains H.T. unit of constant voltage output embodying the new neon stabiliser

IT is a matter of some difficulty to design an H.T. eliminator for Class "B" or Q.P.P. receivers, because the H.T. current varies between wide limits according to the signal strength. The regulation of the ordinary mains unit is such that these current variations will cause sympathetic changes in applied voltage and distortion will result. To prevent this effect a specially constructed neon stabiliser has been introduced which provides almost perfect regulation, there being not more than 7 volts change when the total load of the receiver varies between 5 and 45 mA. Without the stabiliser the voltage change would be about 200. Although the Class "B" Eliminator is designed especially for "The Class 'B' Ferrocart" receiver recently described, it can be used with the majority of sets incorporating the new push-pull output stages.

1 Neon stabiliser	**Cossor**
1 Metal rectifier	**Westinghouse H.T.8**
1 Mains transformer	**Heayberd W.30**
1 L.F. choke	**Trix C.55**
2 Fixed condensers, 4mfd., 1,500 v. D.C. test	**Peak**
2 Metallised resistances, 20,000 ohms, 1 watt	**Dubilier**
1 Resistance, 2,500 ohms, tapped at 1,800 ohms, 10 watts	**Dubilier "Spirohm"**
1 Valveholder, 5-pin	**Clix Chassis Mounting Type**
2 Fuses, 1 amp., for flexible leads	**Belling Lee No. 1037**
1 Grid-bias battery, 16½ volts	
1 pr. Grid-bias battery clips	**Gripso**
3 Mains plugs and sockets, complete with bushes	**Clix**
Plymax baseboard, 10in. x 7½in. x ⅜in., and battens and bracket for plug sockets	**Peto-Scott**
1 Perforated metal box	**Peto-Scott**
Systoflex, wire, flex, etc.	
Wood Screws: 2½, ⅜in., No. 4 R/hd.	

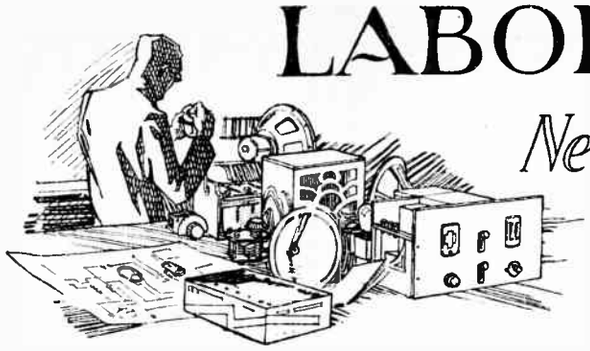
A.V.C. MONODIAL: A CORRECTION.

IN the under-baseboard wiring plan of the Monodial receiver with A.V.C., on page 225 of the issue for March 24th, the fixed resistors R9 and R10 were inadvertently interchanged.

One end of each of the resistors in question was correctly shown as connected to the same terminal of C7, but the connections between the other ends and condenser C8 should be changed over.

LABORATORY TESTS

New Radio Products Reviewed



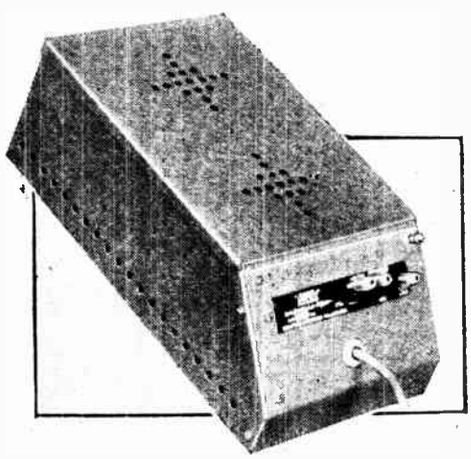
ATLAS Q.P. MAINS UNIT

A RANGE of H.T. battery eliminators designed especially for use with Q.P.P. receivers and gramophone amplifiers has just been introduced by H. Clarke and Co. (Manchester), Ltd., Atlas Works, Patricroft, Manchester. They are known as Q.P. units, there being two models for A.C. mains and one for use on D.C. supplies. The nominal output is given as 12 mA at 150 volts, but currents up to 20 mA. can be drawn from the units, as the voltage regulation is as good as it is possible to achieve with this type of power supply unit.

Each unit has two intermediate voltage tappings, one for the detector valve and one for the auxiliary grids of the pentode output valves. The first mentioned is rated at 60-80 volts with sub-tappings giving minimum and maximum voltages, which with 12 mA. drawn from the unit were 40 and 65 volts respectively in the case of the unit tested.

Provision is made for matching within sufficiently close limits the operating conditions of the two pentodes in the Q.P.P. output stage. The auxiliary grid supply for these valves can be taken from one of three sockets marked 130-140 volts. They permit of variation between 8 and 10 volts, according to the load on the unit. With a total load of 12 mA. the measured outputs from these sockets were 140, 150 and 160 volts. At a load of 18 mA. the voltages dropped to 128, 136, and 142 respectively.

The output from the 150-volt tapping measured 180 volts at 9 mA., 169 volts at 12 mA., 150 volts at 16 mA., and 135 volts at 20 mA.



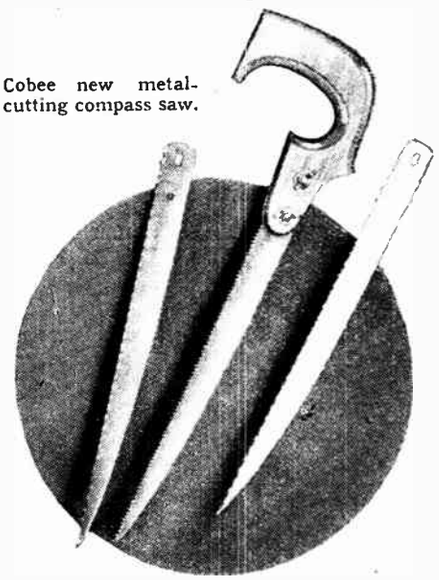
Clarke's Atlas Q.P.24 A.C. mains unit for use with Q.P.P. receivers.

Both A.C. models include Westinghouse rectifiers, and the price is 72s. 6d. for the Q.P.24, and 100s. for the Q.P.26. This has the addition of an L.T. trickle charger. The D.C. version, model D.Q.P., costs 45s.

COBEE COMPASS SAW

MADE by A. Barson and Co., Ltd., 53, Truro Road, Wood Green, London, N.22, the Cobee metal-cutting saw is an ideal tool for the wireless home constructor, as it can be used for cutting metal sheet, metal-backed wood such as "Plymax," and ordinary ply-wood with equal facility. The orthodox hack saw has definite limitations owing to the presence of the frame, whereas in the Cobee saw the blades are sufficiently rigid to render a frame unnecessary.

The blades are 13in. long and $\frac{1}{16}$in. thick, and are easily interchanged, a coarse-toothed blade being recommended for cutting wood, whilst one with fine teeth similar to those of an ordinary hack-saw blade is available for use with metal. We found the coarse-toothed blade particularly efficacious in cutting aluminium-backed plywood, a material that is often used in the construction of chassis for *Wireless World* receivers. The Cobee saw should find a place in every home



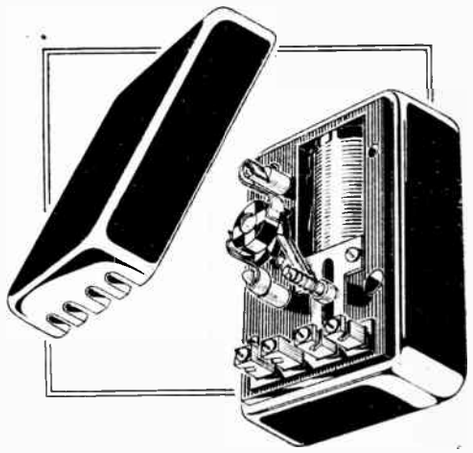
Cobee new metal-cutting compass saw.

constructor's workshop, in view of its undoubted usefulness, and the price is 5s. 3d. complete with three blades.

WATES DISTANT SWITCH

THIS is a remote control unit for switching on and off the receiver from any distant point, and would be an exceedingly useful addition where loud speaker extensions are provided. It operates from a small $4\frac{1}{2}$-volt flash-lamp battery and a standard bell push-button switch. Current is taken only for a few seconds at a time, so that a battery of this type will serve for many months.

The mechanism is simple, robust and rapid in its action. It consists of a small solenoid, in the centre of which is a plunger of soft iron. When the battery circuit is closed the plunger is drawn into the solenoid and carries with it a ratchet. This engages with a toothed wheel, causing it to rotate one-eighth of a revolution. Metal segments, arranged in the form of a cross, come into contact with two spring leaves and so close the filament or mains circuit of the receiver. As the plunger mechanism



Wates distant switch with cover removed.

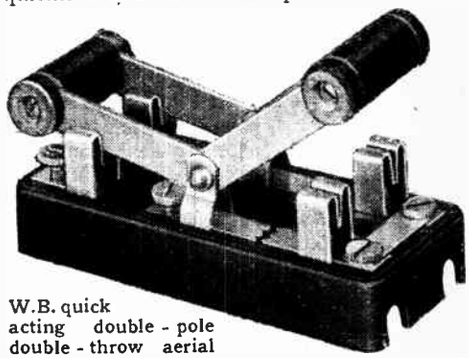
is returned to the "ready" position by gravitation, it is essential to mount the switch vertically and as explained in the descriptive literature.

The switch is quite reliable, and operates immediately the bell-push is pressed. However, if the leads are much in excess of about 20 yards, or have a resistance greater than one ohm, a six-volt battery becomes necessary, but it would be quite in order to use two flash-lamp batteries wired in series. Incidentally, the switch will operate on A.C., and one of the small bell-ringing transformers giving 5 or 8 volts output at one amp. could be used in place of batteries.

The makers are Wates Radio, Ltd., 184-188, Shaftesbury Avenue, London, W.C.2, and the price is 9s. 6d.

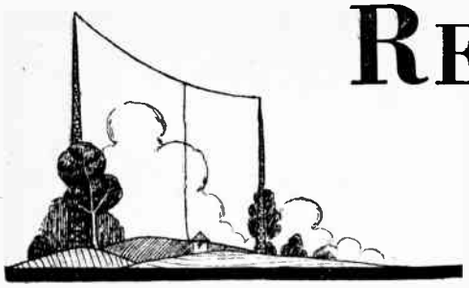
W.B. EARTHING SWITCH

MOUNTED on a moulded bakelite base measuring $3\frac{1}{8}$in. × $1\frac{3}{8}$in., this new W.B. aerial switch, which is a double-pole double-throw type, entirely isolates the receiver from both the aerial and the earth when in the "safety" position. It is fitted with V-shaped knife contacts and has a handle at each end, thus ensuring perfect rigidity, quickness and ease of manipulation.



W.B. quick acting double-pole double-throw aerial switch.

The makers are Whitely Electrical Radio Co., Ltd., Radio Works, Victoria Street, Mansfield, Notts, and the price is 1s.



READERS' PROBLEMS

THESE columns are reserved for the publication of matter of general interest arising out of problems submitted by our readers. Readers requiring an individual reply to their technical questions by post are referred to "The Wireless World" Information Bureau, of which brief particulars, with the fee charged, are to be found at the foot of this page.

Checking Condenser Sections

TO ascertain whether all the various sections of a ganged condenser have the same capacity at any given angular setting is not a difficult matter. The regenerative detector circuits of an existing receiver—even of the receiver for which the condenser forms a part—and a milliammeter are practically all that is needed if one adopts the plan shown diagrammatically in Fig. 1.

This scheme is recommended to a reader who believes that his failure to obtain accurate ganging is due to a defective condenser. The testing apparatus should be wired up in the manner shown, in such a way that any section of the ganged condenser may be employed to tune the grid circuit; an absorption circuit, consisting of another coil, a condenser, and preferably a "vernier" condenser as well, should be placed in inductive relationship with the tuned circuit. The procedure is to make the testing circuit oscillate by increasing reaction coupling, and then to adjust the trimmers on the ganged condenser sections so that when they are set at zero any section will tune the circuit to precisely the same wavelength.

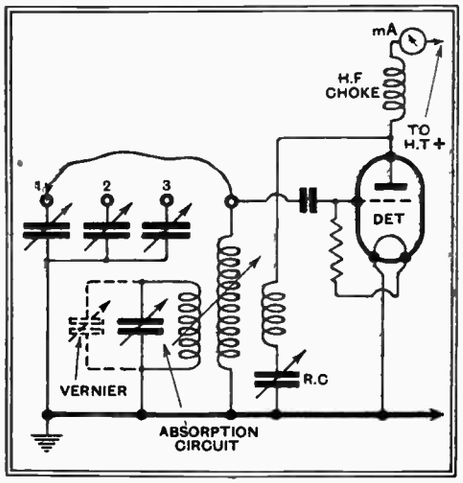


Fig. 1.—Tracing misalignment in ganged condensers: an improvised test circuit operating on the absorption principle.

A state of resonance between the absorption circuit and the oscillating circuit is indicated by a "kick" of the milliammeter reading as the former is brought into tune; coupling should be so loose that this "kick" is only just perceptible. If the reading of the absorption tuning condenser (or better, its parallel vernier) remains unchanged, irrespective of which ganged condenser section is in circuit, it can be assumed that all have the same capacity.

Having made the preliminary adjustment of trimming capacity, the sections of the ganged condenser should be checked at a number of other settings, no subsequent adjustment of the trimmers being permissible. Again, the absorption condenser setting should be the same for each condenser unit, and any discrepancy is a measure of the amount by which individual units are out of alignment.

Voltage Measurements: A Precaution

ALTHOUGH not entirely accurate, a direct measurement of the voltage applied to a high-power output valve, if taken by a good high-resistance voltmeter, is accurate enough for most practical purposes. In making measurements of this kind it is common practice to connect the negative terminal of the meter to the earth line or metal chassis, and then to join the positive meter terminal to the valve anode, or some other convenient point in that circuit.

This procedure is apt to introduce a serious error when dealing with heavily biased mains-operated valves, and we think it is responsible for an effect noticed by a correspondent. By connecting the meter in the manner described he is reading the sum of the anode and grid bias voltages applied to the valve; this would account for the fact that the voltage appears to be higher than it should.

It would be correct in the circumstances to connect the negative terminal of the meter directly to the cathode terminal of the output valve, and not to the earth line. With a directly-heated A.C. output valve connection should be made to the centre tap of the filament transformer, or even to either of the filament terminals.

Loud Speaker Changes

THE Modern A.C. Quality Amplifier (*The Wireless World*, February 17th) is a somewhat specialised piece of apparatus, and consequently its power supply and smoothing circuits do not follow conventional practice. The amplifier was primarily designed for use with a pair of matched loud speakers, both having field windings of 2,500 ohms resistance; provided that the specification is followed implicitly in this matter, everything is straightforward, but a number of readers who propose to use single loud speakers, or other loud speaker combinations, seem to be uncertain as to the right method of procedure.

These uncertainties may be cleared up by saying that, with obvious limitations as to power handling capacity and suitability of the built-in coupling transformer, any loud speaker or pair of loud speakers may be employed; permanent magnet, energised, or these types in combination.

As a result of departing from the specification certain changes may become necessary, and as a guide in making these a simplified diagram of the power supply circuits is given in Fig. 2. Referring to the original design, the first (series-connected) loud speaker field is employed for smoothing purposes, and so it can only be replaced by a choke or a choke-resistance combination having a total resistance of 2,500 ohms.

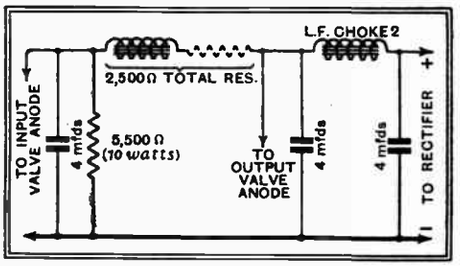


Fig. 2.—A special system of progressive smoothing is used in the "Modern A.C. Quality Amplifier." This simplified diagram of the power supply circuits shows how the parallel-connected field winding may be replaced by a loading resistance.

The second (parallel-connected) loud speaker field, in conjunction with resistance R_5, acts as a load, and its presence ensures that sufficient energising current shall flow through the other field winding. Consequently, for the second field, a plain resistance of 5,500 ohms (10 watts rating) may be substituted for these two components if desired.

An Out-of-date Arrangement

A NOISY background, and especially a background of hiss, was a serious shortcoming of the earlier superheterodynes. This disadvantage has now been almost completely overcome, largely by methods of control made possible by the introduction of the variable-mu valve.

These remarks are prompted by a letter from a reader who has improvised a superheterodyne receiver largely from existing parts; except for background noises, the set works satisfactorily.

A circuit diagram submitted for criticism shows that no form of volume control is fitted other than provision for regulating input from the aerial. This means that all the valves—and particularly the I.F. amplifier—are always working at full magnification irrespective of the strength of incoming signals. Consequently, the background hiss will be as bad when dealing with strong signals as with weak ones. To improve the average ratio between signal strength and background noise, we strongly recommend the fitting of some form of volume control which will allow regulation of I.F. amplification.

The Wireless World INFORMATION BUREAU

THE service is intended primarily for readers meeting with difficulties in the construction, adjustment, operation, or maintenance of wireless receivers described in *The Wireless World*, or those of commercial design which from time to time are reviewed in the pages of *The Wireless World*. Every endeavour will be made to deal with queries on all wireless matters, provided that they are of such a nature that they can be dealt with satisfactorily in a letter.

Communications should be addressed to *The Wireless World* Information Bureau, Dorset House, Tudor Street, E.C.4, and must be accompanied by a remittance of 5s. to cover the cost of the service. The enquirer's name and address should be written in block letters at the top of all communications.

"... a very high standard in reproduction... ...undoubtedly in a class apart"

BRITISH BSR THROUGHOUT

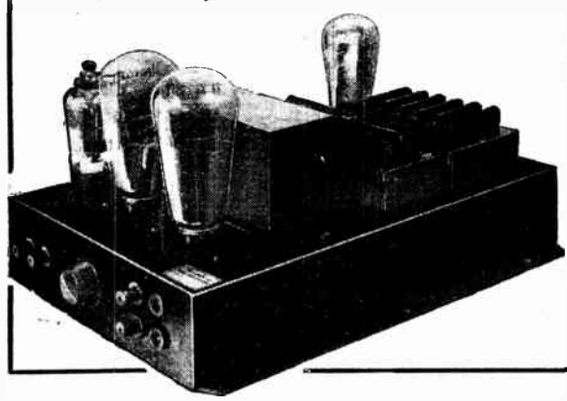
50 & 25 WATT AMPLIFIERS

giving undistorted A.C. outputs of 11·8 & 5·9 watts

The above is an extract from "The Wireless World" Test Report of March 3rd, 1933, on the B.S.R. Ampligram, which incorporates the same circuit as that in the 50 and 25 watt Amplifiers. The vital components are of B.S.R. manufacture and each is designed to give the highest possible electrical and mechanical efficiency.

As a result, the quality of reproduction of all B.S.R. Amplifiers is of the same high level as that of the Ampligram; a quality not approached by any other P.A. Sound Equipment.

The efficient design ensures the maximum output of the Power Valves being utilised, entire absence of distortion and perfect clarity.



OTHER STANDARD MODELS

120, 3 and 2 watts undistorted A.C. Output.
The B.S.R. Radio Chassis supplied for coupling to the above.
Finest materials individually assembled and tested.

SPECIFICATION OF THE 120w. AMPLIFIER—

The Circuit comprises two stages of L.F. Amplification and two D.O.60 Power Valves in Pushpull. Two precision Moving Coil Meters in Power Stage. Mercury Rectifiers with Automatic Delay Switching.
Microphone Input Transformers, Mains and Output Transformers are incorporated in the Chassis
Provision made for plugging in two Microphones and Pick-up with suitable Faders also Main Volume Control.
Mounted on Crystalline Steel Chassis 26"×17½"×12½" high. All wiring Sub-Chassis.
Mains 190/250 50 cycles.
Can be supplied in Dual Turntable Cabinet with suitable Heavy Duty P.A. M.C. Speakers.

Special Treatment for Export without extra cost.

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BIRMINGHAM SOUND REPRODUCERS, LTD.,
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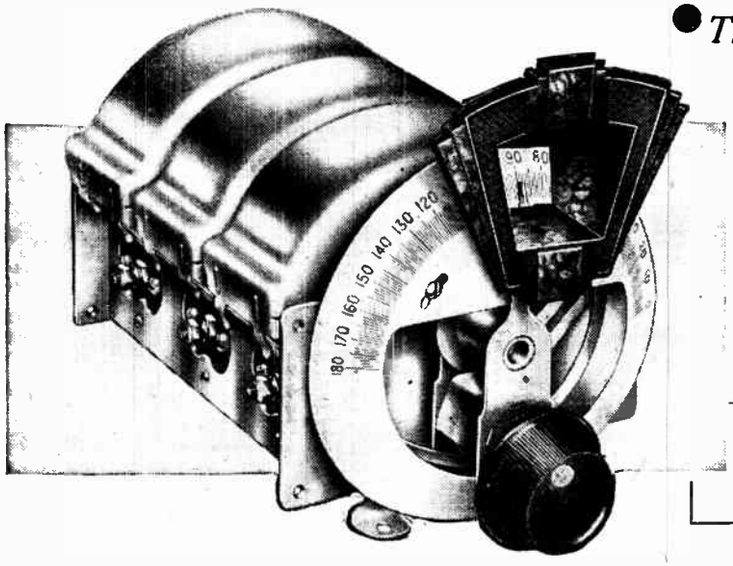
'Phone: Cradley Heath 6370.
'Grams: Electronic, Old Hill.

N.B.—U.K. Trunk Calls (up to 6 minutes) refunded on order being placed.



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- **ACCURATE SPACING** of vanes obtained by precision machine assembly. This entirely eliminates the possibility of error.
- **MATCHING ACCURATE** to within ½ of 1% and 1 mmfd.
- **STRONG SPRING JOURNAL BEARINGS** give absolute freedom from shake or end-play.
- **TRIMMERS** conveniently operated from top. Adjustment constant under all conditions.

POLAR STAR 3 GANG CONDENSER WITH BEVEL DISC DRIVE **30/6** 3 × .0005

for the "CLASS B FERROCART RECEIVER"

the designer says POLAR STAR condensers

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188-9, STRAND, W.C.2.
WORKS: OLD SWAN, LIVERPOOL. Telephone: Temple Bar 2244.

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THE CHARGE FOR ADVERTISEMENTS in these columns is

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Each paragraph is charged separately and name and address must be counted.

SERIES DISCOUNTS are allowed to Trade Advertisers as follows on orders for consecutive insertions, provided a contract is placed in advance, and in the absence of fresh instructions the entire "copy" is repeated from the previous issue: 13 consecutive insertions 5%; 26 consecutive, 10%; 52 consecutive, 15%.

ADVERTISEMENTS for these columns are accepted up to **FIRST POST on MONDAY MORNING** (previous to date of issue) at the Head Offices of "The Wireless World," Dorset House, Tudor Street, London, E.C.4, or on **SATURDAY MORNING** at the Branch Offices, 19, Hertford Street, Coventry; Guildhall Buildings, Navigation Street, Birmingham, 2; 260, Deansgate, Manchester, 3; 26b, Renfield Street, Glasgow, C.2.

Advertisements that arrive too late for a particular issue will automatically be inserted in the following issue unless accompanied by instructions to the contrary. All advertisements in this section must be strictly prepaid.

The proprietors retain the right to refuse or withdraw advertisements at their discretion.

Postal Orders and Cheques sent in payment for advertisements should be made payable to ILIFFE & SONS Ltd., and crossed & Co. Notes being untraceable if lost in transit should not be sent as remittances.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

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- Special P.A. Speakers suitable for all outputs.
- Power Amplifiers suitable for DANCE HALLS SPORTS MEETINGS. FETES, ETC.
- The most up-to-date apparatus for outdoor or indoor sound reproduction and Radio reception.

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DALTON ST., WEST NORWOOD, LONDON, S.E.27.

Manchester Branch:— 2, Whitworth St. West, Deansgate, Manchester.

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For the convenience of private advertisers, letters may be addressed to numbers at "The Wireless World" Office. When this is desired, the sum of 6d. to defray the cost of registration and to cover postage on replies must be added to the advertisement charge, which must include the words Box 000, c/o "The Wireless World." All replies should be addressed to the Box number shown in the advertisement, c/o "The Wireless World," Dorset House, Tudor Street, London, E.C.4. *Readers who reply to Box No. advertisements are warned against sending remittance through the post except in registered envelopes; in all such cases the use of the Deposit System is recommended, and the envelope should be clearly marked "Deposit Department."*

☛ DEPOSIT SYSTEM.

Readers who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Wireless World," both parties are advised of its receipt.

The time allowed for decision is three days, counting from receipt of goods, after which period, if buyer decides not to retain goods, they must be returned to sender. If a sale is effected, buyer instructs us to remit amount to seller, but if not, seller instructs us to return amount to depositor. Carriage is paid by the buyer, but in the event of no sale, and subject to there being no different arrangement between buyer and seller, each pays carriage one way. The seller takes the risk of loss or damage in transit, for which we take no responsibility. For all transactions up to £10, a deposit fee of 1/- is charged; on transactions over £10 and under £50, the fee is 2/6; over £50 5/-. All deposit matters are dealt with at Dorset House, Tudor Street, London, E.C.4, and cheques and money orders should be made payable to Iliffe & Sons Limited.

SPECIAL NOTE.—Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post. When sending remittances direct to an advertiser, stamp for return should also be included for use in the event of the application proving unsuccessful.

IMPORTANT NOTICE.

Owing to the Easter Holidays, the issue of "THE WIRELESS WORLD" for April 21st must be closed for press earlier than usual.

MISCELLANEOUS ADVERTISEMENTS for insertion in that issue can be accepted up to

FIRST POST THURSDAY, APRIL 13th.

RECEIVERS FOR SALE.

1933 Brand New 9-valve "Point Bleu" Super Heterodyne Receiver, A.C. mains, A.V.C., large M.C. loudspeaker; £12, complete.—Drew, 31, The Terrace, Barnes. Prospect 5416. [2335

W.W. Single dial Super, with valves and Multitone tone control; £5.—25, Beaufort Mansions, Chelsea, S.W.3. [2333

BURNDEPT S.G.4 Portable, perfect; accept £4/10.—Williams, 65, Lulham Rd., S.E.6. [2332

OSTAR-GANZ 2-valve Combined A.C. and D.C. Receiver, in modern walnut cabinet, with Rola M.C. loud-speaker, unopened; list price 10 guineas, our price £4/15; c.o.d., carriage paid; state voltage.—Kay, 167, City Rd., Finsbury, London, E.C.1. [2302

NEW H.M.V. Superhet, Radiogram, self changing, No. 531, 9 valves; £52.—Roesch, 5, Garlinge Rd., N.W.2. [2357

M.W. Diodion Super Seven, complete kit, valves, less cabinet, unused; £8/10. Box 6559, c/o *The Wireless World*. [2340

RECEIVERS, components, or valves accepted part exchange for 1933 products, liberal allowances.—Write Dept. R., British Radio Exchange Corporation, 26/27, D'Arblay St., London, W.1. [2364

MURPHY A-8 Superheterodyne, 3 months old, as new; £15.—50, Highfield Rd., W.3. [2387

SINGLE Dial Super, professionally built, as new; £4.—Watts, 17, Boulevard, Weston-super-Mare. [2369

CHARGERS AND ELIMINATORS.

TANTALUM for A.C. Chargers, H.T. and L.T.—Blackwell's Metallurgical Works, Ltd., Garston, Liverpool. [2139

SURPLUS Material.—In order to clear our stocks ready for new season's goods, we are making up a limited number of mains transformers for the

A.V.C. Monodial, 2½ watt chassis, for the remarkable sum of 19/6 each; genuine Bryce production, with 12 months' guarantee.

SECURE Your Bargain Now Before Stocks Run Out from Surplus Dept., W. Andrew Bryce and Co., Woodfield Works, Bury, Lancs. 'Phone: 1251. [2221

A.C. Charging Plant, unused; cost £18/18, for £6/15/6; write for makers' specification.—Jersey, Cumnor Hill, Oxford. [2310

GREAT SUCCESS of the 'W.W.' MONODIAL with A.V.C. as built by

SCOTT SESSIONS!

"W.W." MONODIAL with *AUTOMATIC VOLUME CONTROL* and 5-Watt (A.C.) Output assembled with de luxe workmanship, tested and adjusted by experts, including Royalties and delivery FREE in Gt. Britain. **£42-0-0** (or 1st deposit of £5 5 0; balance over 12months).

The ULTIMATE RADIO-GRAMOPHONE for the Connoisseur.

"W.W." MONODIAL with AUTOMATIC VOLUME CONTROL and 5-Watt (A.C.) Output with GARRARD AUTOMATIC RECORD CHANGER and FERRANTI M.I. Speaker, in very handsome hand-polished walnut, oak or mahogany radio-gramophone cabinet. Individually built, assembled and tested by experts throughout. Inclusive of all Royalties. Delivery free in Gt. Britain. **£75-0-0** (or 1st deposit of £9 7 6; balance over 12 months).

ORIGINAL "W.W." MONODIAL with 5-Watt Output (no A.V.C.), including Valves and Royalties. **£34-0-0** (or 1st deposit of £4 5 0; balance over 12 months).

ORIGINAL "W.W." MONODIAL with 2.5-Watt Output (no A.V.C.), including Valves and Royalties. **£28-15-0** (or 1st deposit of £3 11 10; balance over 12 months).

"W.W." BATTERY ALL-WAVE MONODIAL with Valves, Royalties, fully assembled and ganged. **£23-8-6** (or 1st deposit of £2 18 6; balance over 12 months).

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SCOTT SESSIONS original and best FIELD REPLACEMENT CHOKE, 2,500 ohms. 60 henries as specified. Each **16/-**

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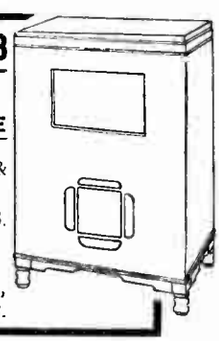

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VARLEY Impedance Matching Transformer, 10/6; pair Varley P.P. transformers separate G.B. 25/-; R. and B. E160 choke, 22/6.

HEAYBERD 4v. 10 amp. Transformer, 13/6; Lissen super 23-1 output transformer, 7/6.

BROWN Vee Cone Units, new, 9/-; R.I. mains transformer, 375v., 7.5v., 5.5v., 10/-; Cyldon 4-gang, 10/-; H.T.3, with Heayberd transformer, 13/-.

POLAR STAR 3-gang Condensers, new, 16/6; with drive, 18/6; Radiophone 2-gang 0.0005, with cover and disc drive, new, 12/6.

B.T.H. D.C. Speaker, 2,500 ohm, 14/-; Colvern Four K.B.L.C. K.G.C., 24/-; Lotus 4-gang condensers, new, shielded, and trimmers, 17/6; "Wireless World" Super Five, with 2v. ring valves, perfect, £5/10; Ryall's S.T.400 coils, 5/-; S.T.300, 5/-; Lewcos and Wearite superhet. coils, 5/- each.

VALVES.—M.S.4, 7/6; A.C./S.G., 9/-; A.C./P., 8/6; Marconi P.T.2, 8/6; D.S.B., 10/6; A.C./S2, 11/-; Mazda P.P.3 425, 8/6; D.A. 60, for callers, 25/-.

SPEAKERS.—D.C.C. Amplion, 2,500 power or pentode, 14/6, new; Kolster-Brandes, new, 4v., L.R., 9/6.

RYALL'S RADIO, 33, Chancery Lane, London, W.C.2 (nearest Tube, Chancery Lane; 'bus 67 passes door, or tram to Savoy St.). Holborn 3529. Open Saturday afternoon. Close 7 p.m., Thursdays 1 o'clock, Saturday 6 p.m. [2349

R.

VICTOR'S Bargains. Set manufacturers' guaranteed surplus: Celestion Soundex permanent magnet moving coil speakers (list 27/6), 16/6; ditto, in walnut cabinet (50/-), 25/11; M.8 (37/6), 21/11; M.12 chassis (35/-), 17/6; Goodmans (49/6), 21/6; Ialoplugh Junior (29/6), 17/6; Igranic mains transformers, 9/3; Ready Radio 303 kits, 19/11; Meteor S.G.3 kits, 26/11; Utility 2-gang condensers, with disc drive and trimmers, 10/6; screened, 11/6; above all brand new, in original cartons; H.M.V. screened chokes, 9d.; Victor, 6, Ondine Rd., Grove Vale, S.E.15. [2384

TELSEN Super Selective Four, unopened kit, 78/6 (list 98/6); S.T.400, sealed kit, 57/6; enquiries invited.—Aldridge, 29, Chatterton Rd., London, N.4. [2385

CHALLENGE ELECTRIC Offers Brand New Set Manufacturers' Surplus. Condensers, 1,500 test multiple block, 20 mfd., consisting (2) 4 mfd., (5) 2 mfd., (2) 1 mfd., 11/-; 11 mfd., (1) 4 mfd., (3) 2 mfd., (1) 1 mfd., 6/9; separate tappings.

VARIABLE Condensers.—Complete with screens cover, trimmers, disc drive, escutcheon plate, knob, etc., J.B. Nu-Gang 3-gang 0.0005, 14/-; Polar Star, 3-gang, complete, as above, 15/-.

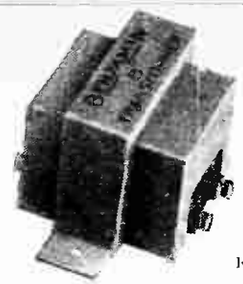
CASH With Order or c.o.d., carriage paid.—Chal Electric, 6, Conduit St., London, W.1. [2389

AVOMETER, new condition, £4; also components; list free.—Gill, 6, Beechwood Av., Tilehurst, Reading. [2386

BRITISH Radiophone Radiopak, as new, unused; 37/6.—Wilson, 62, Pellerin Rd., N.16. [2375

MULTITONE Puco, split secondary, potentiometer, 15/-; O.P.3 (c), 10/6; Cossor P.T.41, unused, 12/6; 2 matched 2201 P.T.s, 20/-; Lewcos frame, 10/6.—Jasper, 3, Eaton Rise, W.5. [2370

EXPERIMENTER, disposing numerous good components, valves, etc.; cheap.—Fowler, 67, Effra Rd., Brixton, S.W.2. [2371



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Components, etc., for Sale.—Contd.

PREMIER SUPPLY STORES Offer the Following Brand New Goods at a Fraction of the Original Cost; all goods guaranteed perfect; carriage paid over 5s., under 5/- postage 6d. extra (Ireland carriage forward).

PREMIER Eliminators, input 200-250 volts, 40-100 cycles A.C., incorporating Westinghouse metal rectifiers, output 250 volts at 60 milliamps, 80 and 120 volt taps, 42/6; with 4 volts 4 amps. L.T. (c.t.), 7/6 extra.

PREMIER Eliminators, output 150 volts at 30 milliamps, 80 and 100 volt taps, with 4 volts 3-4 amps. (c.t.), L.T., 37/6; with trickle charger, 42/6.

PREMIER Eliminators, output 120 volts at 20 milliamps, 80 and 100 volt taps, 27/6; with L.T. trickle charger incorporated, 35/-.

D.C. Eliminators, output 120 volts at 20 milliamps, 80 and 100 volt taps, 15/-; larger model, output 200 volts 50 milliamps, 80 and 120 volt taps, 25/-.

ACCUMULATOR Chargers, 200-250 volts A.C., all incorporating Westinghouse rectifiers: 2, 4, and 6 volts at ½ amp., 17/6; 4 and 6 volts at 1 amp., 22/6; up to 12 volts at 1 amp., 27/6; up to 12 volts at 1.5 amps., 30/-; up to 6 volts at 2 amps., 35/-; up to 6 volts at 3 amps., 39/6; up to 12 volts at 3 amps., 52/6; 3 separate 12 volt 1 amp. circuits, 75/-.

T.C.C. Condensers, 250 volts working, 4×4×1 mfd., 5/-; 300 volts working, 4×4×2×2×2 mfd., 7/-; 375 volts working, 6×4×2×2×2 mfd., 10/-; 300 volts working, 4×4×2×1 mfd., 6/-.

400 Volts Working, 3 separate 4 mfd. condensers, 8/6; with 2 separate 1 mfd. condensers, 2/- extra.

WESTERN ELECTRIC, 400 volts working, 0.01×0.01 mfd., 1/-; blocks 4×2×2×2×1×0.09 mfd., 400 volts working, 6/-.

FERRANTI Condenser Blocks, 300 volts working, 4×4×2×2 mfd., all entirely separate; 10/-.

T.C.C. Condensers, 750 volts working, 2 mfd., 4/-; 750 volts working, 4 mfd., 6/-; 4 mfd., 400 volts D.C. working (200 volts A.C. working), 4/-; 4 mfd. electrolytic condensers, 440 volts working, 3/-.

WESTERN ELECTRIC Condensers, 250 volts working, 1 mfd. 6d., 2 mfd. 1/-; 400 volts working, 1 mfd. 1/-, 2 mfd. 2/-.

POLAR 3-gang Variable Condensers, tub type, fully screened, split end vanes and disc drive, 0.0005; 10/-.

ORMOND All-brass 2-gang Condensers, semi shielded, 0.0005, 5/-; Amsco 3-gang 0.0005 condenser, with trimmers (listed 30/-), our price 7/6; Polar 0.0005 and 0.00035 Bakelite dielectric condensers, with knob, 1/-.

BRITISH RADIOPHONE 4-gang Condensers, with trimmers, fully screened; 16/-.

PREMIER Mains Transformers, all guaranteed, terminal connections, input 200-250 volts, 40-100 cycles, output 225 volts 80 milliamps, for voltage doubling, 8/6; 4 volts 4 amps., centre tapped, L.T., 2/- extra; Westinghouse rectifier for above, giving 180 volts at 30 milliamps, 8/6.

PREMIER Mains Transformers, output 250-0-250 volts at 60 milliamps, 4 volts 1 amp., 4 volts 2 amps., and 4 volts 3-4 amps. (all c.t.), with screened primary, 15/-.

PREMIER Mains Transformers, output 400-0-400 volts at 100 milliamps, 4 volt 4 amp., and 4 volt 2.5 amp.; 18/6.

H.T.8 Transformers, with 4 volts 3-5 amps. L.T. (c.t.), with screened primary, 15/-; with Westinghouse rectifier, 25/-.

H.T.9 Transformers, output 230 volts 200 milliamps, with 4 volts 4 amps. (c.t.), with screened primary, 15/-; with Westinghouse rectifier, 26/-.

H.T.10 Transformers, with 4 volts 4 amps L.T., 15/-; with rectifier, 27/- (output 200 volts at 100 milliamps).

PREMIER Mains Transformers.—12 volts 1 amp., 7/6; 9 volts 1 amp., 7/6; 4 volts 4 amps. and 4 volts 2 amps., 8/6; 14 volts 4 amps., 12/6; 4 volts 3 amps., 7/6; 4 volts 5 amps., 8/6; 22 volts 1 amp., 10/-; 6 volts 2 amps., 7/6.

MAINS Transformers, output 350-0-350 volts, 90 milliamps, 4 volts 3 amps. (c.t.), 4 volts 2 amps. (c.t.), 12/6.

AMPLION Mains Transformers, input 100-250 volts, output 350-0-350 volts 120 milliamps, 4 volts 5 amps., 4 volts 2 amps., and 6 volts 1 amp. (all c.t.); 17/6.

AUTO Transformers, 110/200-250 volts or vice versa; 60 watt, 7/9; 100 watt, 10/-; 180 watt, 15/-.

PHILIPS 328 Valves for L.T. Charging, 5/6; transformer for same, 15/-.

SPECIAL Offer of Mains Transformers, manufacturers' type, any input, output 250-0-250 volts 60 milliamps, 4 volts 1 amp. (c.t.), 4 volts 3 amps. (c.t.), 8/6; 150-0-150 volts 40 milliamps, 4 volts 1 amp., 4 volts 2 amps., 4/6; 175 volts 50 milliamps, 4 volts 4 amps., 4 volts 1 amp., 5/6; H.T.8, with 4 volts 3-4 amps., 8/6; with rectifier, 18/6.

MULTI-RATIO Output Transformers, 6 taps giving 15 different ratios, 7/6; Pye chokes, 20 or 32 henrys, 4/-.

PREMIER Chokes, 40 milliamps 25 henrys, 4/-; 65 milliamps 30 henrys, 6/-; 150 milliamps 30 henrys, 10/6.

SMOOTHING Chokes for Series Connected Filaments from D.C. Mains, carry 1 amp., 7/6; H.M.V. 110 henry chokes (100,000 ohms resistance, carry 10 m.a.), 3/6.

AMPLION High Inductance Chokes, resistance 2,500 ohms, 80 henrys, 60 m.a.; 5/6.

SPECIAL Offer of Wire Wound Resistances, 4 watts, any value up to 10,000 ohms, 1/-; 8 watts, any value up to 15,000 ohms, 1/6; 15 watts, any value up to 50,000 ohms, 2/6; 25 watts, any value up to 50,000 ohms, 3/6; 50 watts, any value up to 50,000 ohms, 5/-.

WIRE Wound Potentiometers, 15,000 ohms, 1/6; Centralab potentiometer volume controls, 50,000 ohms, 2/-; Colverstats, logarithmically wound potentiometers, 6,000 ohms, 1/9.

(This advertisement continued in third column.)

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WATMEL 25,000 OHM POTENTIOMETER TYPE 2

TYPE 2.	**Square Law winding -**	**8/6**
	Without Mains Switch -	6/6
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This resistance meets with the requirements for a volume control which will have an equal variation of volume for the rotation of the knob. This is specially important for the control of the grid bias of the new Variable-Mu Valves. The carrying capacity of the type specified is 15 milliamperes. Our policy this year is to specialise in Potentiometers and Volume Controls of all types. You can, therefore, be certain, when purchasing a Watmel Potentiometer, that you are obtaining the very best from a firm that is concentrating on this type of component.

NOTE THE POINTS:—

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5. Positive stop.
6. Contact finger, phosphor bronze.
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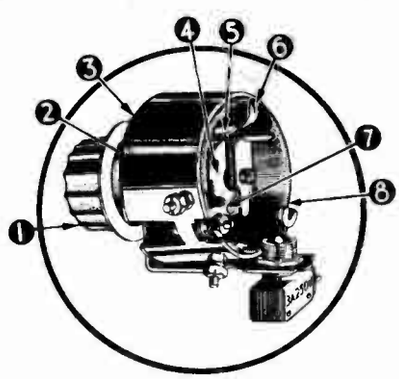
If you cannot get this component from your local dealer, write to us and we will send what you require within 24 hours. Write for catalogue.



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IMPERIAL WORKS, HIGH STREET, EDGWARE.
Telephone: Edgware 0323. (M.C.89)

Components, etc., for Sale.—Contd.

(This advertisement continued from first column.)

HEAVY Duty Variable Resistances, slider type, wound on porcelain, 2,000 ohms, 1·4 amp., 5/-; 500 ohms, 1·2 amp., 5/-.

ROLA 2,000 and 6,500 ohms, type F6, 17/6; Rola F5P.M. permanent magnet, 20/-; F6P.M. permanent magnet, 31/-; please state whether pentode or power output.

AMPLION Moving Coil Speakers, type E.M.644, dual fields 2,500 and 5,000 ohms (100-250 volts), with output transformer, 12/6; ditto, 200-250 volts A.C., 22/6.

B.T.H. Induction Type (A.C. only) Electric Gramophone Motors, 100-250 volts, 30/- complete; double spring gramophone motors with 12in. turntable, 15/- complete.

SPECIAL Offer of Kolster Brandes Electric Gramophone Motors, all complete with turntables, list price £5; No. 1 super, A.C., 100-250 volts, 35/-; No. 2 super universal, 100-250 volts, A.C. or D.C., £2; automatic stops.

EKCO Microphones, complete with transformer, a really fine job, 18/6; wire wound Clarostat potentiometer, 50,000 ohms, 2/6.

WESTINGHOUSE Metal Rectifiers, 120 volts at 20 m.a., 6/6; 180 volts at 30 m.a., 8/6; 8 volts at 0.5 amp., 6/6; 250 volts at 60 m.a., 10/-; 6 volts at 1 amp., 9/6; 12 volts at 1 amp., 12/6; 6 volts at 2 amps., 20/-; 200 volts at 100 m.a., 11/-.

ALL the Following Lines, 6d. each, or 5/- per doz. assorted: Trimming condensers, shielded S.G. or pentode leads; Polymet 0.01 condensers; 2ft. lengths of screened wire; 5-pin valve holders; Crabtree sunk 5 amp. switches; T.C.C. 0.1 condensers; 0.5 condensers.

AMPLION Six Receivers, listed £21, complete with valves, 200-250 volts A.C.; 9 guineas.

FOR Callers Only: The following valves, guaranteed as new: MS4B, MS4, ML4, MH4, DSG, DW2, UU120-350, U14, AC044, VMS4, VMS, S4VA, VDS, DCSG, DC2SG, all at half price; UU60-250, 7/6.

ALL Orders to 20-22, High St., Clapham, S.W.4. Macaulay 2188. Closed 1 o'clock Wednesdays. Open to 9 o'clock Saturdays. Nearest station Clapham North Underground. [2324

SOUTHERN RADIO'S Guaranteed Wireless Bargains.—Mains transformers, fully tapped primary, 200-250v. 50 cycle centre tapped, L.T., 250-0-250, 60 m.a., 4 volts 1 amp., 4 volts 3 amps., 11/- each; 350-0-350, 60 m.a., 4 volts 2 amps., 4 volts 4 amps., 13/- each; 350-0-350, 120 m.a. 4 volts 1 amp., 4 volts 2 amps., 4 volts 4 amps., 18/- each; 450-0-450, 120 m.a., 4 volts 2.5 amps., 4 volts 4 amps., 4 volts 2 amps., 19/6 each; 500-0-500, 120 m.a., 4 volts 2.5 amps., 4 volts 5 amps., 21/- each.

TRANSFORMERS for Eta, Lissen and Loewe rectifiers, 14/6; for Pix and Triotron, 12/6; for Westinghouse H.T.4, 5, 6, or 7, 12/6; for Westinghouse H.T.8 or 9, 14/6 each.

SMOOTHING Chokes.—40 henries 40 m.a., 700 ohms, 6/6 each; 20 henries 60 m.a., 480 ohms, 7/9 each; 15 henries 100 m.a., 330 ohms, 8/9 each; 20 henries 120 m.a., 270 ohms, 9/3 each; pentode output choke, tapped, 1½, 2, and 3 to 1 ratios, 50 henries 50 m.a., 7/9 each.

ALL Transformers and Chokes Guaranteed for 12 months; special capacities quoted for and delivery given within 3 days from receipt of order.

SET Manufacturers' Guaranteed Surplus.—Ready Radio 303 3-valve battery kits, less valves, 21/-, with 3 specified Mullard valves, 39/- each (list £3/10); Ready Radio Meteor screen grip 3-valve kit, less valves, 27/6, with 3 specified Mullard valves, £2/10/6 each (list £5/7/6); Ready Radio Meteor screen grid 3-valve A kit, including cabinet and Celestion moving coil P.M. speaker, less valves, £3/7/6, with 3 specified Mullard valves £4/12/6 each; Mullard Radio for Million 3-valve A.C. kit, complete with 3 specified Mullard valves, £3/12/6 each (list £6/10); all above kits are brand new and packed in original sealed cartons; screened chokes (H.M.V.), 1/- each, 9/- dozen; genuine Amplion loudspeaker units, 2/9 each (listed 12/6); Radiophone volume controls and switch combined, 3/9 each (listed 10/6); Cyldon 3-gang condensers, 0.0005, with trimmers, and fully screened, 8/9 each (listed 32/-); S. G. Brown's A.C. moving coil speakers, incorporating Igranic Eleon rectifier, 12in. cone, 35/- (listed £8/10); condensers, 4 mfd. 2/6, 2 mfd. 1/9, 1 mfd. 1/- each (all 750v. test); block condensers, 12 mfd. (2+2+2+2+2+1+1), 6/9 each; 10 mfd. (2+2+2+2+1+1), 6/3, each 1,500-volt guaranteed test; every article sold by us is guaranteed and carriage paid.

SOUTHERN RADIO, 323, Euston Rd., London, N.W.1 (near Warren St. Tube). 'Phone: Museum 6324. [2359

MAINS Valves at 50% Off List Price, emission guaranteed, D.P.T., D.V.S., S4V, S4V.A., A.C.H.L., M.L.4, 244V., M.L.4, A.C.S.G., Mazda B12, 3/- each; Mullard P.M.24A, 5/6 each; American type valves as follows, 3/- each, all types, 250, 281, 210, and 201A.

GARRARD Spring Gramophone Motors, made for Columbia, in brand new condition: No. 100, a large double spring, 16/-; No. 50, a large single spring, 8/6; No. 20, a small single spring, 5/-; the above do not include any fittings, but being a standard job they can be easily obtained locally; they are guaranteed in perfect order and unused.

LOEWE Vacuum Type Condensers and Resistances, 3d. each and 2/- per dozen, special prices for quantities: 3,000, 10,000, 15,000, 25,000, 50,000, 100,000, ½, ½, and 1 meg. 0.0C5 condensers.

MAINS Transformers, 100-240 volts input, output 350-0-350 100 milliamps, 4 volts 4 amps. C.T., 4 volts, 2-3 amps. 350-0-350 60 milliamps, 4 volts 4 amps. C.T., 4 volts 2-3 amps. C.T., 250-0-250 60 milliamps, 4 volts 4 amps. C.T., 4 volts 2 amps. C.T., all types; 8/9 each.

MAINS Transformers, 200-240 volts input, output for H.T.7 and 4 volts 2 amps. C.T. and 4 volts 1 amp. C.T., output for H.T.5 and 4 volts 2 amps.; both types 5/6 each.

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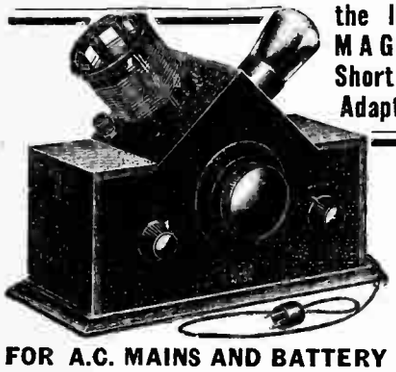

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FOR A.C. MAINS AND BATTERY SETS.

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Model T.A. For sets using American Valves.
Model T.S.G. For sets using British S.G. Valve as detector.
Model T.A.S.G. For sets using American S.G. Valve as detector.

Price, including coil 40/80 metres, Cord and Plug **39/6**
Extra if Coil required 18/40 metres..... 3/-

SUPERHET ADAPTOR MODEL T.S.H.

For all British and American A.C. Mains and Battery sets employing a tuned high-frequency stage.
Price: Adaptor only, including 2 coils 18/40 and 40/80 metres..... **45/-**
Complete with special valve, H.T. and L.T. Batteries **63/-**

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SET CRACKLING IS ANNOYING!

IF IT'S YOUR SWITCH FIT THE "BUSCO" SWITCH

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Components, etc., for Sale.—Contd.

MILDMAY RADIO EXCHANGE Offers the Following, sound and perfect.

FERRANTI Triple Range Meter, 0-10-0, 250v. 0-100 m.a., 40/-; 0-5 m.a., 20/-; 0-150 m.a., 20/-; 0-20 amps., 0-10 volts, 14/-.

ELLIOTT Moving Coil Meters, 0-2 m.a., 20/-; 0-100 m.a., 20/-; Weston type 506, 0-10v., 0.20 amps., 10/- each.

VARLEY Square Peak Coils, 7/6; H.F. coils, 4/6; Colvern, pair K.B.L.C.s and K.G.R., 18/6 set; Colvernlynes, 110 kc., 6/6; T.D. coils, 5/6 each; S.T. 400 coils, 7/- pair.

RADIOPHONE 4-gangs, complete, with drives, 16/6; 2-gang type, 10/-; superhet 2-gang, 12/6; Polar 2-gang, 10/-; Ormond 2-gang, 9/-; J.B. Unitune 3-gangs, 15/-.

MARCONI Latest Type Pick-up, 27/6; Oil type, 22/6; Varley 120 watt transformer, 27/6.

R.I. Pentonite Chokes, 9/- each; Varley P.P. input, 14/-; output, 10/-.

FERRANTI S2V., 14/-; A.F.5, 17/6; A.F.5C., 19/6; O.P.M.I.C., 14/-; A.F.3C., 14/-; A.F.3, 10/-.

DEIHL Aristocrat A.C. Induction Motors, complete, auto stop, 35/-.

PHILIPS 3-valve A.C. Mains Type 2534 Receivers, with valves, £5/15.

CLIMAX Table Type Radiograms, listed £23/2, complete, Rola M.C. speaker, Collaro motor, pick-up and valves; £19.

SIX-SIXTY Chassikits, A.C. mains, with valves; 65/-.

ULTRA 2-valve Sets, A.C. or D.C. mains, with valves and speaker; £4.

MULLARD Valves, S4V.A., S4V.B., 9/-; 354, 15/-, 244, 904V., 7/- each; P.M.24A., 10/-; P.M.24M., 11/-.

MAZDA A.C. S.G., 9/-; A.C. H.L., 7/-.

MARCONI M.L.4, M.H.L., M.H.L.4, 7/-; M.S.4, 9/-; V.M.S.4, 12/-; P.T.625, 9/-; P.T.4, 11/-.

ALL Post Paid.—24, Mildmay Grove, London, N.1. [2363

PARTRIDGE.—If you cannot afford expensive components assure identical results by dealing direct with a qualified mains specialist.

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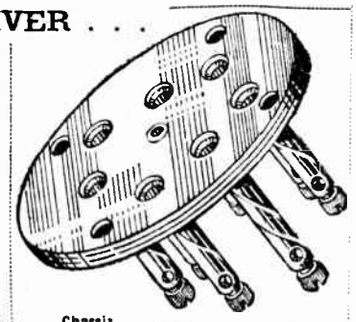

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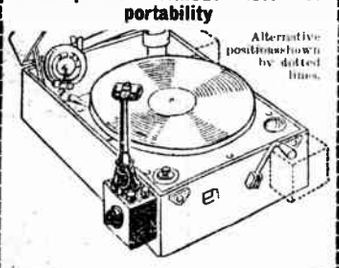

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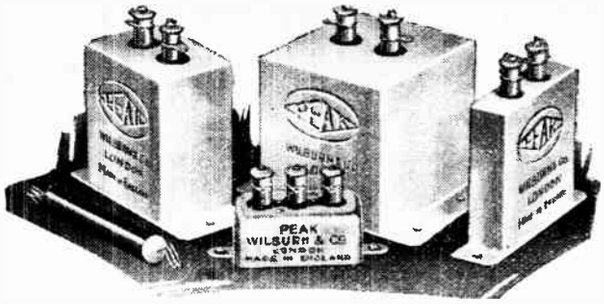

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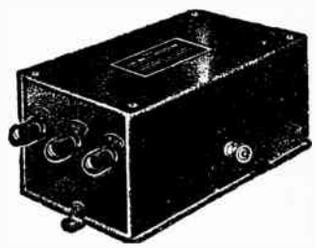

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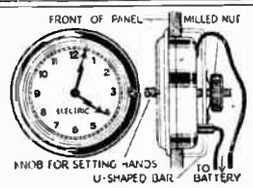

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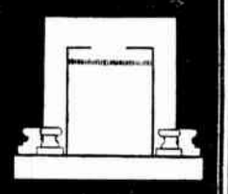

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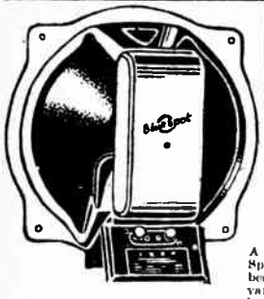

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WEDNESDAY

APRIL THE TWELFTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Talk by the Archbishop of Canterbury. Orchestral and choral concert.
LONDON REGIONAL	Variety programme. Military Band.
MIDLAND REGIONAL	Negro spirituals, choral programme.
WEST REGIONAL	Concert from the Olympia, Tredegar.
BELFAST	"Rose O'Neill," drama of the Ulster Plantation, by Wilson Guy.

ABROAD

BARI	8.35 p.m. Concert of chamber music.
BRUSSELS (No. 1)	8 p.m. Opera: "L'Arlésienne," by Bizet.
BRUSSELS (No. 2)	8 p.m. Organ recital by P. de Maleingreau.
HAMBURG	8.30 p.m. Orchestral concert conducted by O. E. von Sosen, from Hanover.
HILVERSUM	8.40 p.m. Oratorio: "Judas Maccabæus," by Handel.
KONIGSWUSTERHAUSEN	7 p.m. "Hünefeld and Köhl fly across the Ocean," a radio sequence by W. Bley in memory of the first flight to America on April 12th, 1928 (relayed by other German stations).
MUNICH	6.35 p.m. Opera: "Tannhäuser" (Wagner), from the National Theatre.
RADIO-PARIS	8.45 p.m. Programme by artists of the Comédie Française.
VIENNA	7.35 p.m. Mahler's Eighth Symphony, from the Concert House.

ALGIERS

824 kc/s, 364 metres; 13 kW.—**8.10 p.m.,** Shipping Notes. **8.15,** Weather Forecast and Agricultural Notes. **8.20,** Recitations. **8.35,** Programme of Waltz Songs. **8.55,** News Bulletin. **9.0,** Time Signal. **9.2,** Travel Talk: Climbing the Andes. **9.15,** Instrumental and Vocal Concert. **9.40,** News. **9.45,** Concert (contd.). **10.30,** News Bulletin. **10.35,** Concert (contd.). **10.45,** Variety Items. **10.55,** News. **11.0,** Dance Music, relayed from the Hotel Aletti. **12 Midnight** (approx.), Close Down.

ATHLONE

725 kc/s, 413 metres; 60 kW.: and **Cork, 1,337 kc/s (224.4 metres).**—No Transmission.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Records. **8.30,** Exchange Quotations and Probable Relay from the Ayuntamiento. **9.0,** Popular Gramophone Music and News. **10.0,** Chimes from the Cathedral, Weather, Exchange and Market Prices. **10.5,** Concert by the Station Orchestra: March (Blake); Selection from Countess Maritza (Kálmán); Sur le rocher (Cachet); Ständchen (R. Strauss); Canzonetta (Robles); Overture, Il Guarany (Gomez). **11.0,** Poetry Recital. **11.10,** 'Cello Recital by Fernando Perez Prie. **11.40,** Concert by the Station Orchestra: Spanish Rhapsody (Ravel); First Suite from Aphrodite (Février); Marche militaire (Saint-Saëns). **12 Midnight** (in an interval), News Bulletin. **1.0 a.m., Thursday** (approx), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**6.0 to 6.30 p.m.,** Variety Music on Gramophone Records. **8.0,** Agricultural Notes, Tourist Report and Dopolavoro Announcements. **8.20,** Giornale Radio and Weather. **8.30,** Time and Announcements. **8.35** (approx.), Concert of Chamber Music. Soloists: Donato Marrone (Pianoforte), Anna Moltoni (Soprano), Luigi De Grandi (Violin) and N. Delle Foglie ('Cello). Overture, Titus (Mozart); Pianoforte Solo: Cipressi (Castelnuovo-Tedesco); Soprano Solo: Preghiera della vergine (Tavoni); Pianoforte Solo: Melody (Beethoven); Soprano Solo: La mia finestra (Ballorio); Pianoforte Solo: St. Francis of Assisi (Liszt); Overture, Leonora No. 2 (Beethoven); Pianoforte Solo: Rustle of Spring (Sinding); Soprano Solo: Aria di chiesa (Stradella); Violin Solo: Meditation from Thais (Massenet); Soprano Solo: Ave Maria (Schubert); Trio, Op. 70 (Beethoven); Pianoforte Solo: Improvviso (De Nardis). In the interval, **Talk. 10.30,** Symphony Music on Gramophone Records: I pini di Roma (Respighi); Ride of The Valkyries (Wagner). **10.55,** News.

BASLE.—See **Schweizerischer Landessander.**

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**12 noon,** Weather Report. **12.5 p.m.** (appro.). Gramophone Concert: Fridericiana-Marches, by Frederick the Great; Minuet from the Symphony in E (Mozart); Overture, Poet and Peasant (Suppé); In a Persian Market (Ketelbey); Siamesische Wachl-parade (Lincke); Potpourri of Old Operetta Music; Waltz, Wine Woman and Song (Joh. Strauss); Drunt in der Lobau (Stäeerk); Waltz, Titania. After the Concert: Weather Report. **12.55,** Nauen Time Signal. **1.45,** News. **2.0,** Gramophone Concert relayed from **Berlin (Witzleben). 2.45,** Das kalte Herz—Play for Young People (Otto Wollmann). **3.30,** Weather and Exchange. **3.45,** Reading: Mädchen vom Moorhof (Selma Lagerlöf). **4.0,** Talk: German Forest Trees in History and Legend—The Beech Tree. **4.30, See Hamburg. 5.10,** Talk: The Military Education of Young People in France. **5.30,** Talk: Research in the North. **6.0,** A Poem. **6.5,** Bach Chamber Music for Pianoforte: Prelude and Fugue in C Sharp, from Das Wohltemperierte Klavier; French Suite in E No. 6. **6.25,** Topical Talk. **6.40,** Wireless Technical Talk. **6.55,** Weather and Announcements. **7.0,** Transmission for all German Stations: Hünefeld and Köhl fly across the Ocean—a Radio Sequence (Wulf Bley), in Memory of the First Flight to America, on April 12th, 1928. **8.0,** Programme to be announced. **10.0,** Weather News and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Concert from **Heilsberg. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**6.10 p.m.,** Sacred Music from the Heilandskirche, Moabit. **6.35,** Bruno N. Haken reads from his own Works. **6.50,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** Recital of Folk Songs. **8.30,** Concert by a Zither Orchestra. **9.0,** Concert by the Edwin Fischer Chamber Orchestra. **10.10,** Weather and News, followed by Concert of Light Music. **12 midnight** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**7.30 p.m.,** News Bulletin and Market Prices. **7.40,** Tourist Talk. **7.55,** Lottery Results. **8.0,** Agricultural Talk. **8.15,** News Bulletin. **8.30,** Symphony Concert.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**5.55 p.m.,** Hungarian Programme: Programme of Easter Compositions, followed by Pianoforte Solos by Alzbeta Bacsaková: (a) Intermezzo in B Minor, Op. 117 (Brahms). (b) Passacaglia (Bach-Liszt). **6.55,** Talk on Housing. **7.0, See Prague. 7.25,** See **Moravská-Ostrava. 8.5,** See **Prague. 9.0,** See **Brno. 10.0,** See **Prague. 10.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by **Gleiwitz, 1,184 kc/s, 253 metres.—1.5 p.m.,** Weather for Farmers. **1.7,** Gramophone Concert: Concerto in A Minor for Four Pianofortes and String Orchestra (Vivaldi-Bach); Serenade No. 6 (Mozart); Für Elise (Beethoven); Andante con moto from the Trio in C, Op. 87 (Brahms); Nocturne in E Flat, Op. 9, No. 2 (Chopin). **1.45,** Time, Weather, News and Exchange Quotations. **2.5,** Wagner Overtures on Gramophone Records: Das Liebesverbot; Lohengrin; Tannhäuser. **2.45,** Programme arranged by the Post Office with Gramophone Records. **3.10,** Agricultural Prices. **3.35,** Talk. **3.50,** Two Talks for Parents. **4.20,** Recital by Selli Kündel (Soprano) and Erna Gildner-Redlinger (Mandoline): Geständnis (Hausmann); Ich lehne im offenen Gemache (Hausmann); Romance (Redlinger); Es sang vor meinem Fenster (Maletz); Auf einem jungen Rosenblatt (Maletz); Wenn die Linde blüht (Maletz); Religioso (Redlinger); Das Mühlrad (arr. Hirschberg); The Nightingale (Alabiev). **5.0,** Talk: Easter in Popular Belief. **5.15,** Agricultural Prices and Talk. **5.40,** Talk on Goethe. **6.0,** Chamber Music: Sextet, Op. 45 (Blumer); Sextet, Op. 6 (Thuille). **6.40,** Talk on Veit Stoss on the Fourth Centenary of his Death. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** Weather for Farmers and Meat Market Prices. **8.5** (approx.), Silesian Quodlibet by Soloists, the Station Choir and Orchestra, conducted by Franz Marsalek. **9.0,** News. **9.10,** Easter Meditations. **10.10,** Time, Weather, News, Sports Notes and Programme Announcements. **10.30,** Talk: Spring in the Reisengebirge. **10.50,** Concert, relayed from **Heilsberg. 12 Midnight,** Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**6.25 p.m.,** German Transmission: News, Talk, and Legal Talk for Workers. **7.0,** See **Prague. 7.10,** Reading. **7.25,** See **Moravská-Ostrava. 8.5,** See **Prague. 9.0,** Musical and Dramatic Programme. **10.0,** See **Prague. 10.15** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R.; 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Concert relayed from the Memline Hall, Antwerp. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans: Ballet Overture (Lincke); Waltz, In the Land of Dreams (Fucik); Serenade (Chantrier); Swedish Song Fantasia (Söderman); You are my Heart's Delight, from The Land of Smiles (Lehár); In a Persian Market (Ketelbey); Selection from Il est charmant (Moretti). **5.0,** Dance Music, relayed from the St. Sauveur Palais de Danse. **5.30,** Extracts from the St. John Passion, for Mixed Choir and Organ (Bach), relayed from the Conservatoire. **6.0,** Talk: The Museums in Liège. **6.15,** Song Recital by Mr. Ferrari: Two Seventeenth Century Songs: (a) Le Roi a fait batre tambour, (b) Au clair de la lune; Three Eighteenth Century Songs: (a) Air on Three Notes, (b) Il était une bergère, (c) La belle fille et le petit bossu (arr. Ferrari); Le vieux celibataire (Béranger); L'heureux vagabond (Bruneau); Le joli bleu du lac (Daleroze); La chantouse et le conférencier (Ferny); Le fiacre (Xanrof); Mon paradis (Ferrari); Silhouettes modernes (Ferrari). **6.45,** Tomorrow Evening—Sketch (Léon Donnay). **7.0,** Sonata for Flute, Harp, and Viola (Debussy) on Gramophone Records. **7.15,** Talk on Trade. **7.30,** Medical Talk. **8.0,** L'Arlésienne—Opera in Three Acts (Bizet). **10.0,** Le Journal Parlé. **10.10,** Orchestral Concert, relayed from the Ancienne Belgique.

BRUSSELS (No. 2)

N.I.R.; 887 kc/s, 338.2 metres; 15 kW.—**12 Noon,** Concert by the Small Station Orchestra, conducted by Leemans: Overture, The Cunning Peasant (Dvorák); Waltz, Die Kosenden (Lanner); The Kiss—Serenade (de Micheli); Selection from Mignon (Thomas); Dance of the Elves (Henriques); Foxtrot, Flapperette (Greer); Tango, For You (Rotter-Rubens); Selection from White Horse Inn (Benatzky-Stolz); Pasodoble, Tity (Lucchesi). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert, relayed from the Memline Hall Antwerp. **5.0,** Spanish Music for String Quartet and Choir. **6.0,** Gramophone Records of Music by Bach. **6.15,** Talk: The Use of Astrology. **6.30,** Kindertotenlieder (Mahler), on Gramophone Records. **6.45,** Saxophone Recital by Paul Gason: Valse Impromptu (Clyde Doerr): Mazurka (Chopin); Pastorale and Hungarian Dance (Doppler); Serenade, Polichinelle (Kreisler). **6.15,** Talk: South Africa. **7.30,** Theatre Notes. **8.0,** Organ Recital by P. de Maleingreau: Prelude and Fugue in F Minor (Martini): Two Chorals (Bach); Fantasia in F (Mozart); Airs bearnais (Franck); Fantasia on Two Themes (La Tombelle); Carillon (Vierné). **8.45,** Recitations. **9.0,** Concert by Mickey's Club Jazz Attraction. **10.0,** Le Journal Parlé. **10.10,** Gramophone Records: Minuet, Op. 14, No. 1 (Paderevsky); Sizilietta (von Blon); Queen of Heaven (Bellini); Waltz, Sphärenklange (Jos. Strauss); Reginella (Lama); Norwegian Bridal Procession (Grieg); Messager Potpourri (arr. Bervily); Soirees de Vienne (Schubert-Liszt); Selection from The Mastersingers (Wagner).

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**4.6 p.m.,** Concert by the Station Orchestra: Overture, Raymond (Thomas); Ballet Music from The Two Widows (Smetana); Selection from A Life for the Czar (Glinka); Selection from Fatimitza (Suppé); Selection from Die Puppenfee (Bayer). **5.0,** Radio Journal. **5.15,** Concert (contd.). Waltz, Die Kosenden (Lanner); Arabesque, No. 1 (Debussy); Seguidillas (A. Torrandell); Melody (Brediceanu); Violin Solo, Waltz (Ackermans); March (Milanesi). **6.0,** Talks on Politics, Sociology, Economics and Law. **7.0,** Sonata in A Minor for 'Cello (Bocilman). **7.30,** Talk. **7.45,** Song Recital by Mme. Aenne Bickerich. **8.5,** Pianoforte Recital by Mlle. Chebap. **8.35,** Violin Solos by M. Filip. **9.0,** Radio Journal.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW. Also relayed on **840 metres** from **5.20 to 12 midnight.**—**5.0 p.m.,** Talk. **5.30,** Concert by the Sandor Bura Cigany Band. **6.30,** Talk. **7.10,** Pianoforte Recital by Lili Keleti: Karneval, (Schumann); Fantasia (Scriabine); Pastorale (Poulenc); Triana (Albeniz). **7.50,** Talk. **8.0,** Variety Programme relayed from the Kammertheatre. In the interval, News. After the Programme, Concert by the Berci Racz Cigány Band, relayed from the Café Gellert. **12 midnight,** Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.. and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW. **12 Noon,** Time Signal and Chimes from the Town Hall. **12.2 p.m.,** Concert by the A. Bendix String Ensemble, relayed from the Wivex Restaurant. **2.0 to 3.0,** Interval. **3.0,** Concert by the Radio Orchestra, conducted by Lanny Gröndahl: Overture, Halka (Moniuszko); Valse triste (Sibelius); Ballet Music from Aida (Verdi); Norwegian Folk Melody (arr. Halvarsen); Gipsy Dance from Henry VIII (Saint-Saëns); Gallop, Prestissimo (Waldteufel); Overture, Marco Spada (Auber); Selection from The Merry Widow (Lehar); Tango (Albeniz); Fantasia on South Jutland Melodies (Emil Reesen); Dance (Glass); March from The Wedding in the Catacombs (Hoeberg). In the interval, Talk for Women. **5.0,** Talk for Boys. **5.40,** Exchange and Fish Market Prices. **5.50,** Agricultural Talk. **6.20,** French Lesson. **6.50,** Weather. **7.0,** News. **7.15,** Time Signal. Talk on Methods of Heating. **8.0,** Time Signal from the Town Hall. **8.1,** Variety Concert by the Five Musketeers, with Accordion Duets and Songs to the Guitar and Mandoline. **8.50,** Talk: Danish Agriculture in the Near Future. **9.20,** Victor Bendix Song Recital by Sylvia Schierbeck: Oktober; Serenade: Blomsterne sove; Hver tindrer nu min Stjerne; Sommerlyst; Natten var mild og kaer; Sporgsmaal Og Svar. **9.40,** Reading (Anatole France). **10.0,** News. **10.15,** Orchestral Concert of French Music, conducted by Emil Reesen: Overture, The Corsair (Berlioz); Suite from Izeyl (Pierné); La Procession nocturne (Rabaud); Scènes napolitaines (Massenet). **11.0.** Dance Music, relayed from the National Scala. **12 Midnight** (in an interval), Town Hall Chimes. **12.12 a.m. (Thursday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,327 kc/s, 226 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C. Announcers: C. Danvers-Walker, B. McNabb and F. Lamping. **5.30 p.m.,** Concert of Request Items for Portsmouth and Southsea Listeners: Orchestra: (a) Overture, Figaro (Mozart). (b) Minuet from Berenice (Handel); Song of the Volga Boatmen (Traditional); Song, It is only a tiny Garden (Haydn Wood); Sketch, Paradise Alley; Songs: (a) Violets (Wright), (b) Only a Rose (Friml); Orchestra: Vienna Maidens (Zichrer); Songs: (a) Drink to me only (Calcott), (b) Rose of Tralee; Orchestra: Waltz, Sphärenklänge (Strauss). **6.15,** Concert of Request Music for Isle of Wight Listeners: The Grasshoppers' Dance (Bucalossi); Selection from The Merry Widow (Lehar); Song, Always in my Heart; The Sanctuary of the Heart (Ketelbey); Songs: (a) I'll never be the same, (b) I'll stay with you; Trio: You'll never realise; Selection from The Maid of the Mountains (Tate); Duet: Only one Girl in the World for me; Wedgwood Blue (Ketelbey); Waldteufel Memories (arr. Finck). **10.0 p.m.** till Close Down. Programme in English by the I.B.C. **10.0,** Dance Music by the Ikcolians: That's you Baby; Peace

SUN. MON. & TUES. PROGRAMMES

APRIL 12th **WEDNESDAY** *continued*

of Mind; Wouldn't it be wonderful?; Why can't you?; On Top of the World; My Sweeter than sweet; Always the same sweet Pal; Tain't no Sin; Big City Blues; I'll be getting along; I'm the Medicine Man for the Blues; Little Pal; Louise; My Fate is in your Hands; Chiquita. **11.0,** Club Concert for Inverary Listeners: Scotland's Pride; Song, Mary Morrison; The Mad Major (Alford); Duet, The Rose in the Heather (Traditional); Songs: (a) Route Marching (McCall), (b) Kitty my Love will you marry me; Down South (Myddleton); The Packman; Songs: (a) The Drum-Major (Newton), (b) My Sword and I (Byng); Cupid's Army (Sievier); Song, Nelly Grey; The Wee MacGregor Patrol (Amers). **12 midnight,** Concert of Light Music by the I.B.C. (Ireland), Ltd. Orchestra: The Cuckoo Waltz (Jonasson); Songs, (a) Song from the Desert Song (Romberg), (b) Smiling Irish Eyes; Orchestra: The Toymaker's Dream (Golden); Songs: (a) One alone (Romberg), (b) Because (d'Hardelot); Choral Selection from The Lily of Killarney. **12.30 a.m.** (Wednesday), Military Band Concert: Overture, Zampa (Hérold); King's Guard March; Wiegenlied (Brahms); Tally Ho; In a Monastery Garden (Ketelbey); National Emblem March (Bagley); The Three Musketeers; Thunder and Blazes. **1.0,** Banjo Solos and Songs: Banjo Solo, Darktown Dandies; Vocal Trio, Liza Lee; Banjo Solos: (a) The Buffoon, (b) Snatches of Song, (c) Rugby Parade. Vocal Trio: My Baby just cares for me. Banjo Solos: (a) Fashionette, (b) Tatto March. **1.30,** Vocal Duets: Living a Life of Dreams (Rubey); The Waltz you saved for me (Wayne); The Wedding of the Three Blind Mice (Wark). Orchestra Miracle Melodies; Pasadena Rose (Kennedy); When your Lover has gone (Swan); It's an old Spanish Custom (Leslie). **2.0,** Dance Music by the Æolians; The King's Navee; Leave a little for me; Toasts; How do you do Mr. Brown; I can't write the Words; Let's all dance the Polka; The Lady I love; How are you? Isn't it romantic? Balloons; Liszt, Chopin and Mendelssohn; Ain't cha coming out tonight? When they're on the Love Parade; Big Ben's saying Goodnight. **2.47,** I.B.C. Goodnight Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **CASSEL, 1,220 kc/s, 245.9 metres;** and **TRIER, 1,157 kc/s, 259.3 metres.** — **4.30,** Orchestral Concert. **5.50,** Economic Notes. **6.0,** Talk: Wagner, Hebbel, Strindberg and the Problem of Christ. **6.25,** Topical Talk. **6.50,** Time, Programme Announcements, Weather and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** Orchestral Concert, conducted by Reinhold Merten. Soloist: Fritz Griem (Pianoforte); Overture, The Water-Carrier (Cherubini); Pianoforte Concerto in C Op. 15 (Beethoven); Entr'acte after Act I and III of Rosamunde (Schubert). **9.0,** From the Playhouse to the Municipal Theatre—a Radio Sequence on the History of the Theatre (Fritz Wallner). **10.0,** Time, News, Weather and Sports Notes. **10.20,** Topical Talk. **10.30,** Concert from **Langenberg. 12 midnight** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FRIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres,** and **Kiel, 1,292 kc/s, 232.2 metres.** —**4.30 p.m.,** Concert by the Hamburg Philharmonic Orchestra, conducted by Horst Platen. Soloist: Jan Gesterkamp (Violin). Overture, Alceste (Gluck); Rondo in A for Violin and Strings (Schubert); Air (Bach); Two Movements from the Serenade in D (Brahms); Overture, Leonora No. 3 (Beethoven). **5.30,** The Struggle of the German Monastic Orders for Prussia—Radio Sequence (H. Bauer). **6.15,** Recital of North German Folk Songs with Commentary: The Station Choir. Soloists: Elfriede Nissen and Hans Drewe. **6.45,** Frankfurt Exchange and Hamburg Market Prices. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, **8.0** (from **Bremen**), Beethoven Pianoforte Recital by Ella Thies: Seven Bagatelles, Op. 33; Eleven New Bagatelles, Op. 119. **8.30** (from **Hanover**), Orchestral Concert, conducted by Otto Ebel von Sosen: Introduction to the Second and Third Acts of Die Königskinder (Humperdinck): (a) Hellafest, (b) Verdorben; Intermezzo from Stimmungsbilder (R. Strauss); Intermezzo from Tiefland (d'Albert); Three Entr'actes from Carmen (Bizet); Intermezzo from I Pagliacci (Leoncavallo); Entr'acte and Ballet Music from Ali Baba (Cherubini); Prelude to Act V of The Sunken Bell (Zöllner); Prelude to Act II, Ballad and Chorus from The Flying Dutchinan (Wagner); Prelude to Act III of Lohengrin (Wagner). **10.0,** Time and News. **10.20,** Topical Talk. **10.30 to 12 Midnight,** Dance Music. **2.0 a.m. (Thursday),** (also relayed by **Zeesen** on **31.38 metres**), On the Banks of the Elbe. Concert by the Station Orchestra and Choir, conducted by Horst Platen. Soloists: Erna Kroll-Lange, Bernhard Jakschtat and Hans Marten. March from the Hanseatic Suite (Scheffler). North German Dances (Erdlen); North German Ballad, Satans Wief (Platen); Choir: Waltz, Moonlight on the Alster (Fetras); Am Hamburger Hafen (Niemann); Werfthämmer (Niemann); Auf der Reeperbahn nachts um halb eins (Roberts); Waltz, Uhlenhorster Kinder (Fetras); An de Elbe, an de Alster, an de Eill (Strassmann); Stadt Hamburg an der Elbe Auen.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.**—**1.5 p.m.,** Gramophone Concert: Overture, Egmont (Beethoven); Walzer-szene (Strauss); Overture, Anacreon (Cherubini); Etude (Chopin); Spieluhr (Saner); Two Songs from Lohengrin (Wagner); The Rose-Beetle goes a-wooing (Armandola); Teepuppen-Parade (Noiret); The Butterfly's Wedding (Sarony); Wedding Bells (Lewis); Selection from Das Lied der Liebe (Korngold); Valentine's Prayer from Faust (Gounod); Song from The Tales of Hoffmann (Offenbach); March, Habt Acht! (Benes). In the interval at **1.20,** News. **2.30,** Programme arranged by the Post Office, with Gramophone Records. **3.0,** Agricultural Prices and Exchange Rates. **3.20,** Hints for the Housewife. **3.30,** Programme for Children. **4.0** (from **Danzig**), Talk for Parents. **4.30,** See **Hamburg. 5.30,** Talk. **5.50,** Book Review. **6.15,** Agricultural Prices. **6.25,** Talk: The Art of Playing the Pianoforte with Illustration: Fantasia in C Minor (Mozart). **7.0,** Transmission for all German Stations. **8.0,** Weather and News. **8.5,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, The Gipsy Baron (Joh. Strauss); Suite, On the Banks of the Nile (Platen): Zigeunerfest (Heykens); Serenata (Tarenghi); Selection from Carmen (Bizet); Rosenlieder (Eulenburg); Selection from Eva (Lehár). **9.0,** News. **9.5,** The Friends—Play (Pascal du Bois-Reymond). **10.10,** Weather, News and Sports Notes. **10.30,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Oberon (Weber); Selection from Martha (Flotow); Variations on 's kommt ein Vogel geflogen (Ochs); Russian Rhapsody (Börschel); Serenade (Oelschlegel); Rustic of Spring (Sinding); Selection from The Gipsy Baron (Joh. Strauss); Waltz, Hofballtänze (Lanner); March, Semper vivum (Larcher). **12 Midnight,** Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—**12.40 p.m.** till Close Down. Programme of the Workers' Radio Society (V.A.R.A.). **12.40 p.m.,** Concert by De Notenkrakers, conducted by D. Wins. Black Eyes (arr. Campolini): Valse andaloise (Popy); Naples (Mezzacapo); Piazza del Popolo (Frederiksen); Neapolitan Serenade (de Micheli); Jota e Tripoli (Lacôme); Congojas (Bianco); Viva el torero (Popy); Gramophone Records: Czardas (Hubay); Memories of Bitolia (Karastnoyanov); In the Gipsy Camp (Oscheit); Gramophone Records: March (Kockert); Marechiare (Tosti); Dornröschens-brautfahrt (Rhode); Temptation Rag (Lodge). **2.25 to 2.40,** Interval. **2.40,** Programme for Women. **3.40,** Programme for Children. **5.10,** Organ Recital by J. Jong: Race Horses (Wayne); Bells across the Meadows (Ketelbey); Cupid on the Cake (Clarke); Hobomoko (Reeves); Japanese Bell Dance (Yoshitomo); I'll do my best to make you happy (Noble); Steppin' out (Vanchant). **6.40,** Jewish Address. **7.10,** Singing Lesson. **7.40,** Vocal and Instrumental Concert: T. Stotijn (Soprano), J. Stotijn (Oboe), and M. Vredenburg (Pianoforte). **8.10,** Electioneering Address. **8.40,** Judas Maccabaeus—Oratorio (Handel). In the interval at **10.10,** Talk. **11.10,** News. **11.25,** Light Music on Gramophone Records. **12.40 a.m. (Thursday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**11.40 a.m.** till Close Down. Programme of the Christian Radio Society (N.C.R.V.). **11.40 a.m.,** Vocal and Instrumental Concert. Machteld Hagenbeek (Soprano), J. B. Renssen (Violin), and A. C. Willemier (Organ). Organ Solo: War March of the Priests from Athalie (Mendelssohn); Soprano Solos: (a) Angels ever bright and fair, from Theodora (Handel), (b) Nicht so traurig (Bach); Andante from the Violin Concerto (Mendelssohn); Toccata for Organ (Dubois); Aria, Seufzer, Tränen, Kummer, Not, from Cantata No. 21 (Bach); Romance in F for Violin and Organ (Beethoven); Songs (Schubert): (a) Im Abendrot, (b) Abschied. **12.40 p.m.,** Police Notes. **12.55,** Choral Concert with Recitations and Gramophone Records. **2.40,** Talk. **3.10,** Song Recital by B. De Bruin. Folk Song (v. Deinse); Rondo (Jiocco); Two Dutch Songs; Concert in F (Vivaldi); Rondo (Pleyel); In einem kühlen Grunde (F. Glück); Prayer from Der Freischütz (Weber); Theme with Variations (Nees); Berceuse de la Poupée (Duyssens). **3.55,** Agricultural Talk. **4.25,** Concert by a Children's Choir and an Accordion Club. **5.10,** Talk. **5.40,** Programme for Children. **6.40,** Three Talks. **7.40,** Programme arranged by the Department of Building and Roads. **8.10,** Police Notes. **8.25,** News. **8.40,** Programme arranged by the Department of Building and Roads. **9.25,** Choral and Orchestral Concert. Psalm 89; Lobgesang des Zacharias, Op. 11 (Lösser); Recitations; Fantasia, Une soirée d'automne aux Ardennes (Gevaert); Talk; Piece for Male Voice Choir (Galesloot); March, Colonel Bogey (Alford); Potpourri of Sacred Songs (Schweinsberg); Recitations; Male Voice Choir: Vertrouwen op God (de Vliegh); La fille du Régiment (Kessels); Le Fringant (Rousseau); Choir, Die Ehre Gottes (Beethoven); Hymn. **11.55,** Sacred Music on Gramophone Records. **12.10 a.m. (Thursday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**8.20 p.m.,** English Lesson. **8.40,** Concert. **9.0,** Weather, Racing Results and News. **9.15,** Concert. **12 midnight to 1.0 a.m.** (Thursday), Programme in English by the I.B.C., Mr. H. K. Hitchcock announcing. **12 midnight,** I.B.C. Variety Hour. **12.57 a.m.,** I.B.C. Goodnight Melody. **1.0 a.m.** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**7.0 p.m.,** Talk for Housewives. **7.15,** Announcements and Popular Music on Gramophone Records. **7.25,** Announcements for Young Poles. **7.30,** See **Warsaw. 10.20,** Musical Programme. **11.0,** The Letter Box in French.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

FINLAND, 167 kc/s, 1,796 metres; 40 kW. Relayed by **Helsinki, 815 kc/s, 368.1 metres.** —**6.40 p.m.,** Lauri Parviainen Concert by Irja Aholainen (Songs), Väinö Sola (Songs), Martti Simila (Pianoforte), Toivo Oras (Violin), and Martti Heiniö (Cello). **7.25,** Talk. **7.50,** Educational Programme. **8.45,** News in Finnish. **9.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**11.20 a.m.,** Gramophone Concert: Triumphal March from Aida (Verdi); Waltz, Wiener Blut (Joh. Strauss); Overture, Marinarella (Fucik); Operatic Fantasia (Schestak); Potpourri of Marches, Seid einig (Hackenberger). **12 Noon,** Concert by the Münster Orchestra: March, Freiheitsjubel (Blankenburg); Overture to a Comedy (Lincke); Two Pieces (Schmalstich); (a) Madrigal, (b) Scheherazade; Romantic Waltz (Heinecke); Operetta Potpourri, Klänge aus Arkadien (Morena); Old Styrian Music (Pachernegg). **12.50 p.m.,** Weather, Time and News. **1.0,** Concert conducted by Eysoldt. Soloist: Hubert Kirsch (Baritone). March, Die Jugend marschiert (Lindemann); Songs for Baritone: (a) Frühlingsfahrt (Schumann), (b) Aufenthalt (Schubert), (c) Letzter Frühling (Grieg); Selection from The Daughter of the Regiment (Donizetti); Suite, Im Zeichen des Rokoko (Ailbout); Waltz (Waldteufel); Sérénade inutile (de Taeye); Potpourri, Perlen vom Donaustrand (Uhl). In the interval at **2.0,** News. **2.30,** Sponsored Programme with Gramophone Records. **3.30,** Exchange and Time Signal. **3.50,** Talk: The Local History of Germany. **4.15,** Chamber Music for Young People. **5.0** (approx.), Concert from **Munich. 5.45** (approx.). Talk: The Plant World. **6.10,** Talk: A Trip to the South. **6.25,** Review of Books on the History of West German Economics. **6.50,** Weather, Time and Exchange. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** First General News. **8.5,** Concert by the Münster Orchestra: Entry of the Guests into the Wartburg, from Tannhäuser (Wagner); Overture, Donna Diana (Reznicek); Suite from The Sleeping Beauty (Tchaikovsky); Minuet and Serenade from Fridericus Rex (Roland); Waltz, Tales from the Vienna Woods (Joh. Strauss). **9.0,** Proserpina—Monodrama (Goethe), Music by Siegmund von Seckendorff. **9.45,** Nänie (Schiller) for Mixed Choir and Orchestra (Brahms). **10.5,** News and Sports Notes. **10.25,** Serenade by the Münster Orchestra. **12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**12 Noon,** Orchestral Concert: Suite, Auf der Wanderschaft (Klughardt); Spatzenpromenade (Bernhard Egg); Romantic Suite (Armandola); Adagio (Bohm); Dreamland (Czernik); Albumblatt (Humperdinck); Galantes Fest (Dreyer); Süsse Liebe (Vollstedt); Entr'acte Music and Hymn from the Stimmungsbilder (von Fielitz); Nocturne and Musette from the King Christian Suite (Sibelius); Romance (Joachim); Flower Song (Lange); Nocturne (Liszt); Vor einer alten Spieluhr (Müller-Mehlhoni) (Schmalstich). In the interval at **1.0 p.m.** (approx.), News, Weather and Time. After the Programme, Exchange Quotations. **2.0 to 2.30,** Programme for the Unemployed. **3.0,** Talk: The Care of the Blind in the Past and Present. **3.35,** Exchange and Market Prices. **4.0,** Das grasgrüne Osterhäslein—Fairy Play for Children (Gerdy Strieber). **5.0,** Music for the Young: Suite, Der lustige Musikmeister, Op. 123, No. 1 (Niemann); Five Songs for Soprano (Max Reger): (a) Die Bienen, (b) Der Igel, (c) Mausefangen, (d) Zum Schlafen, (e) Des Kindes Gebet; Two Songs for Soprano: (a) Ach, wer das doch könnte! (Berger), (b) Lullaby (Humperdinck); Suite, Der lustige Musikmeister, Op. 123, No. 2 (Niemann). **5.50,** Exchange, Weather and Time. **6.0,** Book Review. **6.25,** Italian Lesson. **6.45,** The Leipzig Station informs its Listeners. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** Gramophone Concert of Classical Music. **8.30,** Talk: The Self-Help Scheme for Poor University Students. **9.0** (approx.), The Tenth Symphony (Bruckner), by the Weimar State Orchestra. **10.5,** Topical Talk. **10.20,** News Bulletin. **10.30** (approx.), Relay of Light Music and Dance Music. **12 Midnight** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**5.0 to 5.30** p.m., Programme in English by the I.B.C.: International Broadcasting Club Concert; Selection from Rigoletto (Verdi); Song, The Blue Danube (Joh. Strauss); Berceuse from Jocelyn (Godard); Songs, (a) Il Bacio (), Ave Maria; Selection from The Gypsy Princess (Kalman). **5.30,** Reading. **6.0,** Popular Music on Gramophone Records. **6.30,** Gramophone Concert of English Music. **7.0,** Literary Programme. **8.0,** Choral Music: Abend auf Golgatha (Springer). **9.0,** Quintet Concert. **10.15,** Time, Weather and News.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW. —**7.30 p.m.,** Radio Gazette for Lyons and the South-East. **8.30,** L'Aîné—Play (René Thoman). After the Play, News Bulletin.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** Concert of Popular Music. **11.45,** Radio Chronicle. **12 Midnight,** Extracts from Molinos de viento—Musical Comedy (Frutos and Luna). **12.35 a.m. (Thursday),** Talk. **12.40,** Light Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Radio Journal, and Request Gramophone Records. **9.25,** News Bulletin and Political Review. **9.30 to 10.30,** Interval. **10.30,** Chimes, Time Signal, Political Review and Dramatic Programme. **12.45 a.m. (Thursday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**6.25 p.m.,** Concert by a School Choir. **7.0,** See **Prague. 7.25,** Concert of Waltzes and Polkas by a Village Band. **8.5,** See **Prague. 9.0,** See **Brno. 10.0,** See **Prague. 10.15** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserlautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—**12.20 p.m.,** Gramophone Concert of Popular Music. **1.15,** Orchestral Concert. **2.0,** Time, Weather, Programme Announcements, News and Exchange. **2.20,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Reading for Young People (Kurt Faber). **3.30,** Two Bavarian Sketches. **3.50,** Weather and Agricultural Notes. **4.0,** Programme for Children. **5.0,** Orchestral Concert, conducted by Erich Kloss: Overture, Abu Hassan (Weber); Suite on Themes from Brahms; Selection from Salomé (Richard Strauss); Scherzo (d'Albert); In the Blue Pavilion (Lautenschläger); Potpourri of Italian Songs and Dances (Micheli); March, O, Deutschland hoch in Ehren (Fetras). **6.5,** Talk: The Flight of the Bremen five Years ago. **6.25,** Introductory Talk to the following Transmission. **6.35,** Tannhäuser—Opera in Three Acts (Wagner), relayed from the National Theatre. In the first Interval at **7.35,** Time, Weather and Agricultural Notes. **10.25,** Time and News. **10.45,** Serenade conducted by Erich Kloss. Soloists: Hedda Ditmar (Soprano) and Walter Hilbring (Baritone). **12 midnight** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**5.30 p.m.,** Concert of Norwegian Music on Gramophone Records. **6.30,** Programme for Girls: Talk for Easter and Balalaika Music. **7.0,** Announcements, Weather, and News. **7.30,** Agricultural Talk: Summer Flowers for Parks and Gardens. **8.0,** Time Signal. **8.1,** Concert by the Station Orchestra, conducted by Hugo Kramm: March (Johansson); Overture, Berlin wie es weint und lacht (Conradi); Selection from Phi-Phi (Christiné); Dance of the Merry Mascots (Ketelbey); Melody (Svendsen); Liebesromanze (Schmalstich); April (Torjusson); Concert Waltz (Lund); Potpourri, From A to Z (Geiger); Donausagen (Eneik); March (J. Christ). **9.10,** Talk. **9.30,** Agricultural Market Prices. **9.40,** Weather and News Bulletin. **10.0,** Topical Talk. **10.15,** Readings. **10.45** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Notes, Tourist Talk, Agricultural Notes, and Giornale Radio. **8.20,** Light Music on Gramophone Records. In an interval at **8.30,** Time and Announcements. **8.45,** Orchestral Concert: Soloists: A. Micozzi (Clarinet) and Pollicino (Tenor); Prelude to Lo straniero (Pizetti); Rhapsody for Clarinet and Pianoforte (Debussy); Tone Poem, Baba-yagä (Liadov); Tenor Solos: (a) All'acquisto di gloria (Scarlatti), (b) Passione d'anima (Tronchi); Rondo for Clarinet and Pianoforte (Bonnard); Sarabande (Dall'Argine); Tenor Solos: (a) Le rose (Romano), (b) Piccola signora bella (Monteforte); Overture, Joan of Arc (Verdi). In the Interval, Talk: Confessions before the Microphone. **10.0,** Programme of Songs. **10.55,** News.

PARIS

EIFFEL TOWER (FLE), 207.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals). **6.45 p.m.,** Theatre Review. **7.0,** Le Journal Parlé. **7.45,** Programme for Children. **8.20,** Weather Report. **8.30,** Announcements. **8.45,** Symphony Concert, conducted by Edouard Flament. Petites musiques (Schmitt); The Clock Symphony (Haydn); Hommage à Rameau (Debussy); La farce du Cuvier (Dupont); Au village (Monpet); Norwegian Bridal Procession (Grieg); Intermezzo from L'amico Fritz (Masragni); Cosatchok (Flament). **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN; 914 kc/s, 328.2 metres; 60 kW. **6.45 p.m.,** Journal Parlé. **7.0,** Gramophone Concert of Popular Music. **8.0,** Interval. **8.15,** Talk on Parasites. **8.20,** Light Music on Gramophone Records. **8.30,** Interval. **8.45,** Choral and Orchestral Concert of Sacred Music, relayed from the Church of Saint-Nicholas-des-Champs: Stabat (Henri Gilson); Rédemption (Gounod). **10.15,** News.

PARIS

RADIO PARIS; Call CFR; 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Four Suites for Wind Instruments, from the Dreigraschenoper (Weill), on Gramophone Records. **12 Noon,** Educational Talk. **12.15 p.m.,** Opera Music of Many Lands, by the Radio Paris Orchestra; Selection from Le petit Faust (Hervé). **12.30,** Organ Recital by G. T. Desserre: Overture, Pique Dame (Suppé); Waltz, Odyle (Timpippe); Les Rameaux (Fauré); Suite, La Feria (Lacôme). **1.0,** Exchange, News, and Weather. **1.5,** Orchestral Concert (contd.): Selection from Falstaff (Verdi-Tavan); Selection from Rhodope (Ganne); Selection from L'elisir d'amore (Donizetti); Selection from Eva (Lehár); Selection from The Prophet (Meyerbeer). **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.40,** Gramophone Records. **7.0,** Medical Talk. **7.20,** Concert: Romance à Manon (Demaret); Dance of Pan (Frederiksen); Two Dances (d'Afrènes); Ballet Music from Le Cid (Massenet). **7.50,** Commercial Prices and News. **8.0,** Readings from André Dahl's Tales. **8.30,** News and Weather. **8.40,** Fashion Review, by Mlle. José. **8.45,** Images Saintes—Mystery Play (Valmy-Baysse). Music by Grécourt. In the interval at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**10.0 p.m.,** Work-a-day Thoughts. **10.5,** Business News. **10.15,** Ballroom Promenade, from **New York. 10.30,** Weather Report. **10.32,** Market Reports. **10.45,** Programme to be announced. **10.57,** David Lawrence Dispatch. **11.0,** Jean and Gene. **11.15,** Dick Daring, from **New York. 11.30,** The Singing Lady. **11.45,** Little Orphan Annie, from **New York. 12.0 Midnight,** Booth Tarkington's Mamie and Cousin Bill, from **New York. 12.15 a.m. (Thursday),** Time Signal. **12.16,** Weather Report. **12.17,** Teaberry Sport Review. **12.22,** Press News Recler. **12.29,** Temperature Report. **12.30,** KDKA Orchestra. **12.45 to 2.45, New York** Relay. **12.45,** To-day's News by Lowell Thomas. **1.0,** Amos 'n' Andy. **1.15,** The Southern Singers. **1.30,** International Tidbits. **2.0,** Eno Crime Clues. **2.30,** Time Signal and Harriett Lee and her Leaders. **2.45,** Programme to be announced. **3.0 to 4.15, New York** Relay. **3.0,** Adventures of Sherlock Holmes. **3.30,** Woodbury Programme with Morton Downey and Donald Novis. **4.0,** D. W. Griffith's Hollywood. **4.15,** Around the Cracker Barrel. **4.30,** Music Magic from **New York. 5.0,** Time Signal. **5.1,** Teaberry Sport Review. **5.11,** Temperature Report. **5.12,** Weather Report. **5.15,** Press Last Minute News Flashes. **5.20,** Smith Ballew and his Orchestra. **5.58,** KDKA Artist Bulletin. **6.0,** College fun Orchestra, from **New York. 6.30,** Time Signal and Goodnight.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by Parik. Soloist: V. Frait (Violin): Overture (Kubin); Bohemian Rhapsody, Op. 21, for Violin and Orchestra (Ondricek); Oriental Suite (Grinsky). **5.0,** Talk: Metals and Future of Mankind. **5.10,** A Marionette Play. **6.5,** Agricultural Talk. **6.15,** Talk for Workers. **6.25,** News in German. **6.30,** German Transmission: Talks for Workers. **7.0,** Chimes. **7.1,** News. **7.10,** Medical Talk. **7.25,** See **Moravská-Ostrava. 8.5,** Folk Song Recital by Emma Simandlova. **8.25,** Concert by the Prague Wind Instrument Quintet: Overture, Die Fledermaus (Joh. Strauss); Duettino for Oboe and French Horn (Smetacek); Three Dances (Pacak): (a) Slow Foxtrot, (b) English Waltz, (c) Rumba. Gramophone Records: Polka (Sistek); Serenade (Kubin); Furiant (Novak). **9.0,** Time Signal. **9.1,** See **Brno. 10.0,** Time Signal. **10.1,** News Bulletin. **10.15,** News in French for Foreign Listeners. **10.30** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **LAUSANNE, 442 kc/s, 680 metres;** and **GENEVA, 395 kc/s, 760 metres.**—**6.0 p.m.** (from **Geneva**), Programme for Children. **7.0** (from **Lausanne**), Weather and News. **7.30** (from **Lausanne**), Talk on Milk. **8.0** (from **Lausanne**), Chamber Music by the Euterpien Trio. **8.45** (from **Lausanne**), René Chevalley reads from his own Works. **9.0,** Concert by the Radio-Suisse Romande Orchestra, conducted by Robert Echenard. **10.0,** News and Weather. **10.10** (from **Geneva**), Dance Music by the Broadcasting Serenaders. **11.0** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres,** and **2RO, 11,810 kc/s, 25.4 metres.**—**1.0 p.m.,** Time and Announcements. **1.10 to 2.15,** Orchestral Concert. In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Children's Radio Review. **5.10,** Announcements. **5.15,** Exchange, Report of the Royal Geographical Society and Giornale Radio. **5.30 to 6.15,** Orchestral Concert. **7.0 (Naples),** Shipping and Sports Notes. **7.10,** Agricultural and Dopolavoro Notes. **7.20,** Giornale Radio. **8.0,** Time, Announcements, and Light Music on Gramophone Records. **8.15,** Medical Talk. **8.30,** Sports Notes and Tourist Report. **8.45,** Relay from a Theatre. In the intervals: Announcements, a Monologue, and News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**8.30 p.m. to 1.15 a.m. (Thursday), New York** Relay. **8.30,** Westminster Choir. **9.0,** Two Seats in the Balcony. **1.0 a.m.,** Mischa Weisbord (Violinist). **1.15,** Stock Reports. **1.30,** Utica Club Programme. **1.45 to 3.30, New York** Relay. **1.45,** The Goldbergs—Comedy Sketch. **2.0,** The Royal Vagabonds. **2.30,** The Shadow—Mystery Drama. **3.0,** General Pershing. **3.30,** First Prize Supper Club followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW; **BASLE, 1,229 kc/s, 244.1 metres;** and **BERNE, 1,220 kc/s, 245.9 metres.**—**12.28 p.m.,** Time Signal from Neuchâtel Observatory. **12.30,** Weather and News. **12.40** (from **Berne**). Gramophone Records of Arthur Rubinstein, Thibaud, Cassado, Galli-Curci, Caruso, and the Scala Choir. **1.35,** Weather and Exchange. **1.40 to 3.30,** Interval. **3.30** (from **Zürich**). Concert by the Small Radio Orchestra. **4.30** (from **Zürich**). Programme for Children. **5.0** (from **Zürich**). Popular Music on Gramophone Records. **5.30,** Weather. **5.35 to 6.30,** Interval. **6.30** (from **Zürich**). Talk: Children and Handwriting. **7.0,** Time, Weather, and Market Prices. **7.15** (from **Zürich**), Elementary English Lesson. **7.45** (from **Zürich**), Musical and Literary Programme, The Radio Orchestra and Karl Theo Wagner (Bass-Baritone). **9.30,** Weather and News. **9.40** (from **Zürich**), Mandoline Concert by the Italian Mandoline Circle, conducted by G. Cerati. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres, 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**5.5 p.m.,** Concert by the Sjung-Sjung Choir, conducted by Knut Mathiesen, relayed from **Orebro, 1,265 kc/s, 237.2 metres. 5.45,** Popular Music on Gramophone Records. **6.30,** A Visit with the Microphone. **6.45,** Violin and Pianoforte Recital of Hungarian Music by Klara Dullien and Tibor Rieger. Hungarian Rhapsody No. 1, for Violin and Pianoforte (Tibor Rieger); Violin Solo: Variations on a Hungarian Theme (Hubay); Pianoforte Solo: Selection from The Carnival Wedding (Poldini); Ruralia hungarica (Dohnanyi). **7.15,** Weather and News. **7.30,** Talk: The History of the Reformation in Sweden. **8.0,** The Conqueror—Play in Four Acts (Hunyadi). **9.45,** Weather and News. **10.0,** Dance Music by the Enders Orchestra, relayed from the Bern Hall. **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Gramophone Concert: Love Tale of Alsace-Lorraine (Davis-Coots); Potpourri, Metropoliana (Brinkmann); Selection from The Land of Smiles (Lehár); Viennese Operetta Revue (Robrecht); Selection from A Kiss in Spring (Kálmán); Selection from Eine Nacht in Venedig (Joh. Strauss); Selection from La vie Parisienne (Offenbach); Potpourri (Dostal); Selection from The Rose of Stamboul (Fall); Potpourri, Mosaic (Zimmer). **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Variety Music on Gramophone Records. **2.0 to 5.0,** Interval. **5.0,** Orchestral Concert, conducted by Roskam; Soloist, M. Grégoire (Violin): Scandinavian Suite (Juel-Frederiksen); Solitude of the Prairies (Ole Bull); Violin Solo, Romance (Svendsen); Dance of Pan (Frederiksen); Overture, Erlenhügel (Kuhlau); Selection from Quo Vadis? (Nougués); Adoration (Filipucci); Choral (Franck). **6.0,** Trio Concert relayed from **Lille, 1,130 kc/s, 265.4 metres. 7.0,** Legal Talk in French. **7.15,** Talk in German on Strasbourg Guilds. **7.30,** Time and News. **7.45,** Gramophone Concert: C'est un petit village (Cab-Rosfeld); Valse de passé (Cab-Bay); Oh Monah (Weems); Sweet and lovely (Arnheim); Dans ma roulotte (Parisé); La Valse à Yoyo (Ariotto); Dinah (Lewis); I'm nobody's Sweetheart (Cayenter); Three little Times (Sarony); One little Quarrel (Hoffermann). **8.15,** Press Review in German and Lottery Results. **8.30,** Concert by the Philharmonic Society, relayed from **Thionville.** After the Concert, Press Review in French. **10.30,** Jazz Music conducted by Roskam. **11.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres, 60 kW.; and **FREIBURG, 527 kc/s, 570 metres.**—**12 Noon,** Gramophone Concert of German Music: March, Deutscher Föhn (Handssteingal); Für Deutschland soll es sein (Anacker and Gansser); March, Vom Rhein der Wein (Brandt and Lincke); Des Hegauhäuser Gruss an die Heimat (Stocker, Alberta and Freydorf); O Schwarzwald, O Heimat (Abt); Märkische Heide (Böchsenschütz and Lincke); Heimatland (Kistenmacher and Bussmann); Ich hab mich ergeben (Schulz-Berger); Ich hatt' einen Kameraden; In meiner Heimat (Hildach and Busse); Mecklenburger Melodienkranz (Kruse); Mein Schlesierland (Mittmann and von Walde); March, Unsere Marine (Thiele); Kennt ihr das Land; Mein Niedersachsen (Volmerhausen); Viennese Folk Music; Vindobona (Leopold); Auf der Lüneburger Heide (Blume, Ulfig and Löns); Gruss aus dem Oberinntal; Strasbourg Polonaise (Schart); March, Mein Oesterreich (Preis). **1.15 p.m.,** Time, News, Weather, and Programme Announcements. **1.30,** Concert from **Langenberg. 2.0,** Programme arranged by the Post Office, with Gramophone Records. **2.15 to 2.30** (from **Mannheim**), Programme arranged by the Post Office, with Gramophone Records. **3.10,** Song Recital by Wilhelm Fricke: Aria from Undine (Lortzing); Two Songs (Silcher): (a) Klage, (b) Gute Nacht; Prayer from Wiliam Tell (Rossini). **3.30,** Programme for Children. **5.0,** See **Munich. 5.50,** Time, Weather, and Agricultural Notes. **6.0,** Talk: Easter Customs. **6.25,** Talk: Libraries, Librarians and Readers. **6.50,** Time and Weather. **7.0,** Transmission for all German Stations, relayed from **Berlin (Konigs Wusterhausen). 8.0** (from **Mannheim**), Organ Recital, with Accompaniment by the Philharmonic Orchestra: Concerto grosso in D (Corelli); Concerto in G Minor, No. 1, for Organ and Orchestra (Händel); The Brandenburg Concerto (Bach); Concerto in B Flat for Organ and Orchestra (Händel). **9.15,** Manfred Kyber Programme—Radio Sequence of Fairy Tales, Nature Stories, and Music. **10.0,** Time, News, Weather, and Programme Announcements. **10.45,** See **Munich. 12 Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—**5.45 p.m.,** Iberian Suite (Albéniz), by the Symphony Orchestra. **6.0,** News Bulletin. **6.15,** Songs from Sound Films. **6.30,** Instrumental Solos; Banjo Solo, Souvenir (Drdla); Cornet Solo (Wittmann). Mazurka for Violin (Marycky); Pianoforte Solo, La Fileuse (Raff); 'Cello Solo, Andaluza (Granados). **6.50,** Instrumental Music and Talk. **7.15,** News, Racing Results and Market Prices. **7.25,** Local News. **7.30,** Songs from Opera; Aria from Tannhäuser (Wagner); Aria from Boris Godunow (Mussorgsky); Aria from The Tales of Hoffmann (Offenbach). **7.45,** Viennese Music. **8.15,** Songs from Operettas: Ca fait passer un moment, from Le Comte Obligado (Moretti); La Lettre, from La Périchole (Offenbach); Je suis timide from La Poupée (Andran). **8.30,** Hawaiian Guitar Music. **8.45,** Opéra-Comique Songs. **9.0,** Concert by the Philharmonic Society, conducted by M. Mausonnier; Light Music in the interval. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Songs. **11.15,** Au Bal Musette. **11.30 to 12 Midnight,** Programme in English by the I.B.C.: W. Brown-Constable announcing. **11.30,** "A Year Ago"; Me; It always starts to Rain; Springtime reminds me of You; Ali Baba's Camel; I found You; Got a Date with an Angel; Dancing with Tears in my Eyes; When the Guards are on Parade. **11.57,** I.B.C. Good-night Melody. **12 Midnight,** News and Weather. **12.5 a.m. (Thursday),** Orchestral Music. **12.15,** Military Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.0 to 6.0 p.m.,** Vocal and Instrumental Concert: Concerto for Violin and Pianoforte (Pergolesi); Soprano Solos: (a) Donne vaghe, (b) Nel cor più non mi sento (Paisiello), (c) Heimliche Aufforderung, (d) Cäcilie (R. Strauss); Violin Solos: (a) Larghetto (Nardini), (b) Gavotte (Bach-Kreisler), (c) Clair de lune (Debussy), (d) Hungarian Dance No. 6 (Brahms); Soprano Solos: (a) Voce tra i vampi, (b) Passa Pierrot (De Leva), (c) Aria from Resurrection (Alfano). **6.35** till Close Down. See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 598 kc/s, 500.8 metres.**—**5.0 to 6.0 p.m.,** Song Recital. **6.35,** Giornale Radio, Agricultural and Dopolavoro Notes. **7.0,** Time and Gramophone Records of Light Music. **7.20,** Giornale Radio. **7.45,** Tourist Report and Gramophone Records (contd.). **8.0,** Announcements. Giornale Radio, and Weather. **8.15,** Medical Talk. **8.30,** Comedy in Three Acts, followed by Orchestral Music. **11.0,** Giornale Radio. **11.5 (Florence),** Dance Music from the Rajola. **11.30** (approx.), Close Down.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and **5,969 kc/s, 50.26 metres** (Evening); 10 kW.—**11.0 to 11.15 a.m.,** Religious Information in Spanish. **8.0 to 8.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW.; and **Graz, 851 kc/s, 352.1 metres; Innsbruck, 1,085 kc/s, 283 metres;** and **Klagenfurt, 662 kc/s, 453.2 metres; Linz, 245.9 metres;** and **Salzburg, 218.5 metres.**—**7.25 p.m.,** Time, Weather and Programme Announcements. **7.35,** The Eighth Symphony (Gustav Mahler) for the Seventy-fifth Anniversary of the Vienna Singakademie, relayed from the Concert House. **9.15,** News and Weather. **9.30,** Talk on Music. **9.40,** Concert of Light Music by Oskar Jascha and his Orchestra.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Popular Music on Gramophone Records. **1.20,** Weather Forecast. **1.25 to 3.10,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.30,** Boy Scouts' Report. **3.35,** Programme for Children. **4.0,** Popular Music on Gramophone Records. **4.20,** Talk on History. **4.40,** Talk: The Memoires of a Little-known Man. **5.0,** Musical Programme, followed by Announcements. **5.40,** Talk. **5.55,** Programme Announcements. **6.0,** Talk: Poland To-day. **6.20,** News. **6.25,** Song Recital by Mme. Barblan-Opienska. **7.0,** Miscellaneous Items. **7.20,** Agricultural Report. **7.30,** Talk: The Return of the Polish Religious Novel. **7.45,** Radio Journal. **8.0,** Concert, relayed from **Poznan (896 kc/s, 335 metres).** In the interval, Sports Notes and Radio Journal. **10.0,** Topical Talk. **10.15,** Musical Programme. **10.40,** Talk in Czechoslovakian. **10.55,** Aviation Weather Report and Police Notes.

ZURICH.—See **Schweizerischer Landessender.**

THURSDAY

APRIL THE THIRTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	"It doesn't mean a thing," feature programme by M. C. Webster. Vernon Bartlett: "Leaders in other lands."
LONDON REGIONAL	"Escape," a play by John Galsworthy.
MIDLAND REGIONAL	Orchestral selections from the light operas.
NORTH REGIONAL	"Excerpt from the Big Broadcast," a revue by W. Parnell, from Huddersfield. A Passion play, by G. Rees.
BELFAST	Orchestral concert. Marches and waltzes in various styles.

ABROAD

BARI	8.35 p.m. Military Band concert.
BRUSSELS (No. 1)	8 p.m. The Symphony Orchestra, conducted by A. Meulemans.
BERLIN (Witzleben)	7 p.m. "A German Passion, 1933," by Richard Euringer, music by Herbert Windt (relayed by other German stations).
COPENHAGEN	8 p.m. "Peer Gynt," dramatic poem by Ibsen, music by Grieg.
HAMBURG	8 p.m. The Hanover Orchestra, conducted by O. E. von Sosen.
LANGENBERG	8 p.m. A German Requiem (Brahms).
STRASBOURG	8.30 p.m. Orchestral and choral concert, conducted by M. de Villers.
STUTTGART	9.15 p.m. Old Chamber Music by the Freiburg Trio.
VIENNA	5.55 p.m. Opera: "Parsifal" (Wagner), from the Opera House.

ALGIERS

824 kc/s, 364 metres; 13 kW.—**8.10 p.m.,** Shipping; Notes. **8.15,** Weather Forecast and Agricultural Report. **8.20,** Talk; Curiosities and Recreations. **8.35,** Songs from Opera. **8.55,** News Bulletin. **9.0,** Time Signal. **9.2,** Legal Talk. **9.15,** L'Abbé Vincent Comedy in One Act (Dancourt). **9.45,** News. **9.50,** Request Gramophone Concert. **10.35,** News. **10.40,** Military Music. **10.55,** News. **11.0,** Concert of Oriental Music.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **CORK, 1,337 kc/s, 224.4 metres.**—No Transmission.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert of Spanish Music. **8.0,** Request Gramophone Concert. **8.30,** Exchange Quotations. **9.0,** Popular Gramophone Records and News. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange and Market Prices. **10.5,** Pasodoble, Esaborio (Urmenta); Selection from Don Gil de Alcala (Penella); Waltz (Strauss); Pavana, Noche de estio (Gracia); Seguidillas del velatorin (Barrios); El Zacateque (Barrios). **11.0,** La Tia Tecleta—Comedy in Three Acts (Pin y Soler). **12 Midnight** (in an interval), News Bulletin. **1.0 a.m.,** Friday (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**6.0 to 6.30 p.m.,** Popular Music on Gramophone Records. **8.0,** Agricultural Notes, Tourist Report, and Dopolavoro Announcements. **8.20,** Giornale Radio and Weather. **8.30,** Time and Announcements. **8.35,** Military Band Concert, conducted by Salvatore Rubino. In the interval, Reading. **10.30,** Light Music on Gramophone Records. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**12 Noon,** Weather for Farmers. **12.2 p.m.,** Gramophone Concert: Violin Solos: (a) Liebesfreud (Kreisler), (b) Liebesleid (Kreisler), (c) Canzonetta (d'Ambrosio), (d) Adagio in E (Mozart); Pianoforte Solos: (a) Liebesträume (Liszt), (b) Waltz from Naila (Delibes); 'Cello Solo: Abendlied (Schumann); Harpsichord Solo: Minuet from Don Giovanni (Mozart); Second Movement from the Concerto in F for Organ (Handel); Andante and Finale from the Flute Concerto (Mozart); Harp Solo: Am Springbrunnen (Zabel), followed by Second Weather for Farmers. **12.55,** Time Signal. **1.45,** News. **2.0,** Gramophone Concert of Light Music, relayed from **Berlin (Witzleben).** **3.0,** Programme for Children. **3.30,** Weather and Exchange. **3.45,** Ludwig Bäte reads from his own Works. **4.0,** Talk: German Women and the Nationalist Movement. **4.20,** Talk on Books for Children. **4.30,** Concert from **Berlin (Witzleben).** **5.10,** Health Talk. **5.30,** Clarinet and Pianoforte Recital by D. Collani and Maria Ermeler-Lortzing: Ballad from Phantasiestücken, Op. 43 (Cade); Grand Duo Concertant, Op. 48 (Weber). **6.0,** A Poem. **6.5,** German for Germans. **6.20,** Eduard Behm Concert. Kate Riegel (Songs), Hilde Elgers (Violin) and the Composer (Pianoforte). Songs: (a) Stimme der Sehnsucht, (b) Dämmerstunde; In einem Garten; Vorwärts; Kleine Suite for Violin and Pianoforte. **6.40,** Agricultural Talk. **6.55,** Weather for Farmers and Announcements. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben).** **8.0,** Orchestral Concert, conducted by Edwin Lindner: Serenade for Strings (Tunk); Musik zu einem Ritterballett (Beethoven); Symphony in A (Mozart). **9.15,** See **Langenberg.** **10.15,** Weather, News and Sports Notes. **10.45,** Weather for Shipping.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.30 p.m.,** Concert of Music by Berlin Composers, conducted by Clemens Schmalstich. **5.40,** A Consultation with a Parson on Weddings. **6.0,** Reading. **6.20,** Talk for Young People: The Religious Question; Talk on Music. **6.50,** Topical Talk. **7.0,** Transmission for all German Stations: A German Passion 1933—A Radio Work in Six Parts (Richard Euringer), with Music by Herbert Windt. **8.0,** Extracts from the Third Part of Christus—A Mystery Play (Felix Draeseke). **9.20,** Hours which made History—a Sequence of Historical Sketches I (arr. Dr. Bernhard Kummer). **10.10,** Weather and News.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**6.15 p.m., Radio Journal, relayed from Paris (Ecole Supérieure), 671 kc/s, 447.1 metres. 7.40,** Talk arranged by the International Labour Bureau. **7.55,** Lottery Results. **8.0,** Talk on Wines. **8.15,** News Bulletin. **8.30,** Le Souffle du Désordre—Play in Three Acts (Faure Fremier).

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**5.50 p.m.,** Violin Concerto in D Minor (Wieniavsky) by Jan Polak and the Station Orchestra. **6.15,** Talk on Insurance. **6.30,** Pianoforte Recital by Frantisek Kousch. Toccata and Fugue in D Minor (Bach-K. Taussig); Sonnet (Pancenko); Legend No. 1 (Liszt); March from Parsifal (Wagner-Liszt). **7.0,** See **Prague.** **7.10,** Music Review. **7.25,** Talk on Housing. **7.30** till Close Down, See **Prague.** **11.0** (approx.). Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW., and **GLEIWITZ, 1,184 kc/s, 253 metres.**—**11.50 a.m.,** Concert by the Station Orchestra, conducted by Franz Marszalek. **1.10 p.m.,** Weather Forecast. **1.15,** Concert (contd): Prelude and Scenes from the Second Act of Der Evangelimann (Kienzl); Larghetto from the Second Symphony (Beethoven); Festival March (Fassunge); Coronation March from Die Folkunger (Kretschmer). **2.5,** Sacred Concert on Gramophone Records: Gregorian Choral, Christus factus est; Sonata in B Minor for Two Violins, 'Cello and Organ (Corelli); Agnus Dei from the Missa Papae Marcelli (Palestrina); Passacaglia in C Minor (Bach). **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Advice on Week-End Rambles. **3.50,** Review of Catholic Literature. **4.10,** Soprano and Pianoforte Recital by Hella Böer and Hanna Horn: Sonata in A Minor, Op. 143 (Schubert); Three Songs (Teichmüller): (a) Vor der himmlischen Tür, (b) Elfenarbeit, (c) Erdenkindleins Wiegenlied: Intermezzi, Op. 118, Nos. 1 and 2 (Brahms); Two Songs (Teichmüller): (a) Im Dämmer der Nacht, (b) Frau Nachtigall; Capriccio, Op. 116, No. 3 (Brahms). **5.0,** Talk: Music and Musicians in the Lives of Great Men of Letters. **5.25,** Agricultural Prices. **5.30,** Talk: Personal Experiences in Geneva. **5.45** Music Talk. **6.10,** Topical Programme. **6.35,** Reading: Ererbte Schuld (Franz von Gaertner). **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben).** **8.0,** Agricultural Prices. **8.5,** Sacred Concert, relayed from the Queen Louise Memorial Church: Partita on the Choral, Jesu, deine Passion, for Organ (G. Richter); Mass in A Minor for Two Choirs and Four Solo Voices (Thomas). **8.50,** News Bulletin. **9.0,** Die Judasspieler—Radio Play (Rudolf Mirbt). **10.0,** Time, Weather, News, Sports Notes and Programme Announcements. **10.20,** Answers to Correspondents on Technical Questions. **10.30,** Readings from Old Silesian Documents. **10.45** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by B. Bakala. Fantastic Overture (Balling); Suite (Moor); Lullaby (Fucik); Waltz from The Vintager's Bride (Nedbal); Verdi Potpourri (Morena); Waltz Medley (Robrecht). **5.10,** News for Young People. **5.20,** See **Prague.** **5.50,** Educational Talk. **6.0,** Literary Review. **6.15,** See **Prague.** **6.25,** German Transmission: News and Two Talks. **7.0** till Close Down, See **Prague.** **11.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Concert by the Little Orchestra, conducted by P. Leemans: Pasodoble, Pablo (Rossi); Waltz, Ange d'amour (Waldteufel); Symphonic Sketch, Aurore (Leemans); Ballet Music from Le Cid (Massenet); Impromptu for Pianoforte (Chopin); Aria from Louise (Charpentier); The Student Passes by (Ibanez); Waltz, For You (Burke); Selection from Rose Marie (Friml). **1.0 p.m.,** Le Journal Parlé. **1.10,** Light Music on Gramophone Records. **5.0,** Concert by the Radio Orchestra, conducted by Franz André: Italian March (Rousseau); Selection from A Kiss in Spring (Kálmán); Serenade (Löhr); Waltz (Gossiaux); Tango and Rococo Gavotte (Pataky); The Whistler and his Dog (Pryor); A Wedding in Lilliput (Translateur). **5.30,** Programme for Children. **6.0,** Talk: The Worker's Life in Austria. **6.15,** Gramophone Concert of Cigány Music: Czardas (Grossman); Gipsy Song (Boldi); Hungarian Czardas No. 3 (Barthet); Melody; Gipsy Serenade (Borganov); Waltzes; Quand l'amour meurt (Crémieux); Moss Rose (Bose); Valse bleue (Margis); Waltz, Pomona (Waldteufel); First Waltz (Durand-Mouton); Waltz, Over the Waves (Rosas); La Hussarde (Ganne); Two Songs from Nina Rosa (Romberg); Two Songs from White Horse Inn (Benatsky); Je vous aimerai toujours (Van Parys); Il suffit d'une petite femme (Sylviano). **7.15,** Talk for Workers. **7.30,** Wireless Talk. **8.0,** Concert by the Symphony Orchestra, conducted by Arthur Meulemans. Overture, Pique Dame (Suppé); Selection from Cocorico (Ganne); Gramophone Records: Cantegril (Busser); Czardas (Michiels); Piece (Tapp); Ballet Music from Les deux Pigeons (Messager). **8.45,** Talk: The Government and the Unemployed. **9.0,** Concert (contd.): Selection from Le Caïd (Thomas); Selection from Werther (Massenet); Summer Days Suite (Coates); Gramophone Records: Second Concerto for Clarinet (Grossin); Selection from Lavi (Pierné); Rapsodie Nicoise (Scotto); Waltz (Muller). **10.0,** Le Journal Parlé. **10.10,** Gramophone Concert. Part I: Old and Modern Dance Music. Part II: Wagner Programme. Funeral March from The Twilight of the Gods; Prelude to Act III of The Flying Dutchman; Entry of the Gods, from The Rhinegold; Ride of the Valkyries, from The Valkyries.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—**12.0 Noon,** Gramophone Concert. Part I: Sacred Music. Part II: Variety Music. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by Leemans. Tone Poem, Finlandia (Sibelius); Andante from a Violin Concerto (Mendelssohn); Midnight on Maundy Thursday in Seville (Turina); Airs from Peer Gynt (Grieg); Melodies from Pastoral Suite (Gilson). **5.0,** Religious Programme. **6.0,** Programme for Children. **6.35,** Sacred Programme. Judex (Gounod); Recitation; Gregorian Chant, Hoc Corpus; Onzieme Station of the Cross (Gezelle); Gregorian Chant, Christus Factus est; Recitations; Song: 's Heeren Klacht (Cuppens-De Voght). **7.15,** Book Review and Film Notes. **7.30,** Talk for Women. **8.0,** Programme to be announced. **9.15,** See **Langenberg.** **10.15** (approx.), Extracts from Parsifal—Opera (Wagner) on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Radio Journal.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW. Also relayed on **840 metres from 7.45 to 12 Midnight.**—**5.0,** Agricultural Talk. **5.30,** Popular Music on Gramophone Records. **6.15,** Talk. **6.45,** Pianoforte and Violin Recital by Ladislaus Novaki and Nikolaus Echer: Sonata in C for Violin and Pianoforte (Grieg); Passacaglia (Handel-Halvorsen); Poème d'amour (Lemba); Caprice (Vecsey); Nocturne (Kuula); Tambourin chinois (Kreisler). **7.30,** Review of Foreign Politics. **7.45,** Concert by the Budapest Concert Orchestra, conducted by Nador Zsolt. **9.15,** News. **10.0,** Via Crucis (Liszt), with Introductory Talk; the Choir conducted by A. Harmat. **12 Midnight,** Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 210 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Concert by Carl Rydalf's Instrumental Ensemble: Overture, Lucia di Lammermoor (Donizetti); Minuet and Gavotte from Manon (Massenet); To Spring (Grieg); Selection from Martha (Flotow); Serenata napoletana (Sgambati); Abendlied (Schumann); Spanish Dance (Moszkowsky). **1.0 to 1.40,** Interval. **1.40,** Variety Music on Gramophone Records. **2.10,** Reading. **2.30,** Concert by a Wind Instrument Orchestra, conducted by Lanny Grondahl and a Girls' Choir conducted by Hans Hansen: March (von Blon); Norwegian Rhapsody No. 1 (Svendsen); Jubelouvertüre (Weber); Fantasia on American Songs (Foster); Ballet Music from Robert le Diable (Meyerbeer); March, Father Rhine (Lincke); Songs by the Choir; Introduction and Czardas from Der Geist des Wojewoden (Grossmann); Kaiserwalzer (Strauss); Overture, Le Grand Mogol (Andran); The Lost Chord (Sullivan); March, Tommy Atkins (Aage Brunn). **4.30,** Programme for Children. **5.0** (also relayed by **Skamleback** on **31.51 metres**). Divine Service relayed from the Christiansborg Castle Church. **6.2** Talk. **6.50,** Weather Report. **7.0,** News Bulletin. **7.15,** Time Signal. **7.16,** Sports Notes. **7.30,** Talk: Henrik Ibsén and Peer Gynt. **8.0,** Chimes from the Town Hall. **8.1,** Peer Gynt Drama in Five Acts (Ibsen), arranged for Radio, with Incidental Music by Grieg. **10.30** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,327 kc/s, 226 metres; 10 kW.—**5.0 to 7.0 p.m.,** Programme in English by the I.B.C.: C. Danvers-Walker, B. McNabb, and ... Lamping announcing. **5.0,** Tango Band Concert for Worthing and Littlehampton Listeners: La Paloma; Plegaria; Tesoro Mio. Songs: (a) Tapu sais, (b) Déja; Madrid; Maman, yo quiero un novio? Violin Solos: (a) Caprice Basque (Sarasate), (b) Fandango (Godowsky); Corazon; Adios Juventud; Todavia. **6.15,** Concert for Brighton and Hose Listeners: March, Blaze away (Holman); Songs: (a) I bring a Love Song, (b) Ah, Sweet Mystery of Life; Sextet: Kashmiri Love Song (Woodforde-Finden); Duet: Good-night Sweetheart (Noble); Sextet: (a) Some day I'll find You, (b) Le Cygne (Saint-Saëns); Songs: You will remember Vienna, (b) You are my Heart's Delight (Lehar); Duet: Leave the Pretty Girls Alone (Robinson); Sextet: Serenade. **7.0 to 10.0,** Programme in French. **10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music by the Æolians; Without my Gal; Just like in a Story Book; It must be True; Sing, hollo, go whistle, hey, hey; Molly; Cupid on the Cake; Topsy Turvy Talk; Come and have a cuddle on the Common; What have you Done?; Tiddle-i-i-dle-um-pum; Moaning for You; Cherrio-Cherrio-Chin-Chin; Lizzie; The Chant of the Jungle; Time on my Hands. **11.0,** Organ Recital: Selection of Popular Melodies: Berceuse de Jocelyn (Godard). In a Chinese Temple Garden (Ketelbey); Bacio (Arditi); Melody in F (Rubinstein); La Serenata (Braga); Glow Worm Idyl.

APRIL 13th THURSDAY continued

(Lincke). 11.30, Gramophone Concert: Oh, Glory, by Gracie Fields; Pardon me Pretty Baby, by Jack Smith; That's were the South Begins, by Sophie Tucker; Nip and Nunky in Fireworks, by Lupino Lane and Wallace Lupino; I'd Love to be a Sailor, by Sir Harry Lauder; Dog-gone, I've done it, by the Boswell Sisters; Rockin' Chair, by Paul Robeson. 12 **Midnight,** Club Concert for old Meldrun Listeners: Medley, Bonnie Scotland; Song: O Maiden, my Maiden (Lehar); March, Here, there and Everywhere (Bosc); Songs: (a) Bonnie wee thing, (b) Three Fishers went sailing; When the Lilac blooms again (Rotter); Song: Song of Love; March, Light of Foot (Latann); Songs: (a) O' a' the airts; Songs: (a) Wayside Rose (Lehar), (b) My ain Folk; Violin Solo: Lord Lovat's Lament; Happy Days and Lonely Nights (Fisher). 1.0, Accordion Solos: Annette (Phillips); Au revoir (Cuvelier); Marche joyeuse (Cuvelier); Donauwellen (Rosas); Flor d'Espagna (Vola); La Java de Doudonne (Padilla); Rosa (Vola); The Skaters' Waltz (Waldteufel). 1.30, Vocal Quartet Concert: Shenandoah; In Absence; Give me the Days; Orchestral Selection: Songs of Other Days; Stein Song; Blaze Away; There is a Tavern in the Town. 2.0, String Quartet Concert: Molly on the Shore; Siciliana; Song: For you Alone; Cherry Ripe; Gavotte from Mignon (Thomas); Song: I hear a Thrush at Eve; Andante Cantabile; Oriental. 2.30, Vocal Duets: The Keys of Heaven; Give thy Hand O Fairest; Pianoforte Solo: The Bee's Wedding (Mendelssohn); A Paradise for Two; Lightly, lightly; Pianoforte Solo: Hunting Song; Homing; O lovely Night. 2.57, I.B.C. Good-night Melody. 3.0 approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **CASSEL, 1,220 kc/s, 245.9 metres;** and **TRIER, 1,157 kc/s, 259.3 metres.**—3.30 **p.m.,** Programme for Young People. 4.50, Economic Notes. 5.0, Concert from **Stuttgart.** 5.50, Economic Notes. 6.0, Topical Talk. 6.25, Talk: Hermann Lietz. 6.50, Time, Programme Announcements, Weather, and Economic Notes. 7.0, Transmission for all German Stations, relayed from **Berlin (Witzleben).** 8.0, See **Breslau.** 8.45, Concert. 10.0, The German Almanac. 10.20, Time, News, Weather, and Sports Notes. 10.30 till Close Down, See **Stuttgart.** 11.40 (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—2.10 **p.m.,** Gramophone Concert: Overture, Norma (Bellini); Hungarian Rhapsody (Popper); Selection from Tiefland (d'Albert); Zueignung (R. Strauss); Liebesfeier (Weingartner); Air from Indigo (Joh. Strauss); Selection from Liselott (Künnecke). 3.0, Exchange. 3.40, Shipping Notes. 4.0, A Play for Young People. 4.30, Concert from **Heilsberg.** 5.30 (from **Kiel**), Divine Service, relayed from the University Church. 6.45, Exchange. 6.50, Weather. 7.0, Transmission for all German Stations. 8.0 (from **Hanover**), Concert by the Hanover Orchestra, conducted by Otto Ebel v. Sosen; Soloists, Emil Bartels ('Cello) and Fritz Zille (Flute): 'Cello Solo. Largo quasi Arioso (Händel); Adagio from the Pathetic Sonata (Beethoven); Flute Solo, Andante from the Concerto in D (Mozart); Allegretto from the Sonata, Op. 164 (Schubert); Allegro from the Symphony in B Flat (Schumann); Presto from the Italian Symphony (Mendelssohn); Chromatic Gallop (Liszt). 9.0, An Intellectual Revolution; Musical and Literary Programme: Nächtlicher Zug (Unger); Talk by Herr Hinkel; Festival Prelude (R. Strauss). 10.0, Time, Weather, Announcements, Sports Notes, and Police Report. 10.20 (approx.), Close Down.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW., and **DANZIG, 662 kc/s, 453.2 metres.**—1.5 **p.m.,** Gramophone Concert. 1.20 (in an interval), News. 2.30 **(Danzig),** Exchange and Market Prices. 3.0, Market Prices and Exchange Rates. 3.30, Programme for Young People: Scenes from Die Braut von Messina (Schiller). 4.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Prelude to the Third Act of La monda della Luna (Haydn); Selection from Don Giovanni (Mozart); Overture, Fierrabras (Schubert); Selection from Preciosa (Weber); Selection from The Barber of Bagdad (Cornelius); Melodies from Marschner's Operas. 5.45, Talk: German Engineers in India. 6.15, Agricultural Prices. 6.25 (from **Danzig**), Agricultural Talk. 7.0, Transmission for all German Stations. 8.0, See **Munich.** 8.35, Vocal and Instrumental Concert: Soloists: Traude Mendel-Dietzel (Contralto) and Georg Kniestädt (Violin). Sonatina for Flute, Clarinet and Bassoon, Op. 7 (Bentzon); Modern Songs; Three Pieces for Violin; German Folk Songs (Brahms); Violin Solos; Chamber Trio for Oboe, Bassoon and Harpsichord (Zachov). 10.0, Weather, News and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to 4.40 **p.m.**).—11.10 **a.m.** till Close Down, Programme of the Algemeene Vereniging Radio Omroep (A.V.R.O.).—11.10, Instrumental Concert. Johan van Emden (Pianoforte), Eliazar Blok ('Cello), and Egbert Veen (Pianoforte). Invitation to the Waltz (Weber); Rustle of Spring (Sinding); Liebestraum, No. 3 (Liszt); Adagio cantabile (Tartini); Sicilienne, Op. 78 (Fauré); Meditation (Schalker). 11.40, Dressmaking Lesson. 12.10 **p.m.,** Instrumental Concert (contd.). Berceuse (Chopin); Etude in G Flat (Chopin); Mazurka in B Flat (Chopin); Minuet in G (Paderevsky); Consolation, Op. 14 (Verhallen); Melody (Blok); Scene from Arlequin, Op. 3 (Popper). 12.40 **p.m.,** Time Signal. 12.41, Concert of Light Music by the Rentmeester Orchestra, with Gramophone Interludes. 2.40, Talk for Women. 3.25, Variety Music on Gramophone Records. 3.40, Dressmaking Lesson. 4.25, Popular Music on Gramophone Records. 4.40, Talk for Hospitals. 5.10, Concert by a Women's Choir. 5.40, Tales for Children. 6.10, Concert of Light Music by Kovacs Lajos and his Orchestra, with Songs by Bob Scholte. 7.10, English Lesson. 7.40, Electioneering Address. 8.10, English Lesson. 8.40, Time Signal. 8.41, News Bulletin. 8.45, Concerto for Pianoforte and String Orchestra (W. Fr. Bach), by the Wireless Orchestra, conducted by Nico Gerharz. Soloist: Mrs. H. Leopold-Draper. 9.5, Concert by a Women's Choir, conducted by Karin Kwant-Törngen. 9.25, Concert by the Wireless Orchestra, conducted by Nico Gerharz. Overture, Der Schauspieldirektor (Mozart); Minuet in G (Beethoven); Romance in G (Beethoven); Ballet Music from Rosamund (Schubert). 9.55, Concert by the Aguilar Lute Quartet. 10.10, Recital by Piet van Egmond, Jr. (Organ) and Hélène Cals (Soprano). 10.40, Concert by the Wireless Orchestra (contd.). Scherzo from A Midsummer Night's Dream (Mendelssohn); Andante cantabile for Strings (Tchaikovsky) Solveig's Song from Peer Gynt (Grieg); Letzter Frühling (Grieg). 11.10, Concert by the Aguilar Lute Quartet. 11.25, Concert by the Wireless Orchestra (contd.). Symphonic Poem, Zorahayde (Svendsen); Hungarian Dances, Nos. 5 and 6 (Brahms). 11.40, News Bulletin. 11.50, Popular Music on Gramophone Records. 12.40 **a.m. (Friday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—12.55 **to 2.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). Concert by the K.R.O. Orchestra, conducted by J. Gerritsen: March, Wilhelmina (Wesly); Overture, Il Guarany (Gomez); Waltz, La Hussarde (Ganne); Selection from Fedora (Giordani); Melody (Siep); Ballet Music from La Gioconda (Ponchielli); Gramophone Records of Variety Music: Rakoczy Overture (Keler Bela); Parade im Märchenwald (Noack); Potpourri of Viennese Folk Melodies (Drescher); Spanish Serenade, Lolita (Buzzi-Peccia); Wedgwood Blue (Ketelbey); March (Suppé). 2.40 till Close Down, Programme of the Christian Radio Society (N.C.R.V.). 2.40, Handicrafts Lesson. 3.40, Programme for Women. 4.10 **to 4.40,** Interval. 4.40, Bible Reading and Song and Organ Recital. 5.40, 'Cello Recital by Bram Hemerik: Adagio and Allegro from the Arpeggione Sonata (Schubert); Hebrew Song (Mussorgsky-Stutschewsky); Gramophone Records of Light Music: Rondo, Op. 94 (Dvorak); Largo, Op. 105 (Moor); Andaluzà (Granados). 6.25, Handicrafts Lesson. 6.55, Talk. 7.25, Dressmaking Lesson. 7.40, Electioneering Address. 8.10, Police Report. 8.25, Talk. 8.40, Choral Concert of Sacred Music, with Addresses, relayed from a Church. 10.10, News. 10.25, Press Review. 10.55, Records of Variety Music, with Commentary. 11.40, Popular Music on Gramophone Records. 12.10 **a.m. (Friday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—8.20 **p.m.,** Radio Concert. 9.0, Weather, Racing Results and News. 9.15, Radio Concert. 11.0, Tourist Talk in German. 12 **Midnight to 1.0 a.m. (Friday),** Programme in English by the I.B.C.: H. K. Hitchcock announcing. 12 **Midnight,** I.B.C. Variety Hour. 12.57 **a.m.,** I.B.C. Good-night Melody. 1.0 (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by **Helsinki, 815 kc/s, 368.1 metres.**—5.0 **p.m.,** Concert by the Station Orchestra, conducted by Erkki Linko: Symphony in E Flat (Mozart); Sarabande (Bach); Overture, Egmont (Beethoven). 6.15, Talk. 6.40, Talk. 7.5, Symphony Concert by the Viipurin Musiikinystävät Orchestra, conducted by Horis Siroh, relayed from **Viipuri (1,013 kc/s, 291 metres).** Soloist: Mme. Violanti-Schauman (Songs). Prelude (Pergolesi-Westerhout); Litanei (Toch); Songs; Symphony No. 7 (Bruckner). 8.45, News in Finnish. 9.0, News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—11.20 **a.m.,** Gramophone Concert. Suite No. 2 in B Minor (Bach); Overture, Egmont (Beethoven); Third Movement from Symphony No. 1 in C Minor (Brahms). 12.0 **Noon,** Programme from **Munich.** 12.50 **p.m.,** Weather, Time and Announcements. 1.0, Orchestral Concert, conducted by Eysoldt. March, Deutschlands Ruhm (Schröder); Overture, Light Cavalry (Suppé); Scenes from William Tell (Rossini); Intermezzo, Liebeswalzer (Reger); Egyptian Ballet (Luigini); Minuet (Seeger); The Bells of St. Cyr (Schmalstich); Waltz, Mein Ideal (Blon); March Potpourri, Die Wache zieht auf (Kochmann). In an interval at 2.0 (approx.), News. 2.30, Sponsored Programme with Gramophone Records. 3.30, Economic Notes and Time. 3.50, Programme for Children. 4.15, Review of Dutch and Flemish Books. 4.35, Orchestral Concert, relayed from **Münster.** Selection from Die Folkunger (Kretschmer); Overture, Euryanthe (Weber); Helmsman's Song and Sailors' Chorus, from The Flying Dutchman (Wagner); Friedemann-Bach Suite (Leuschner); Melodies from The Bird-Fancier (Zeller); Waltz, Schwert und Leier (Strauss). 5.45, Talk: The Cathedrals of Freiburg, Breisach and Strasbourg. 6.5, Poetry Reading (Karl Schorn). 6.20, French Conversation Lesson. 6.45, Weather, Time, Exchange and Sports Notes. 7.0, Transmission for all German Stations, relayed from **Berlin (Witzleben).** 8.0, A German Requiem (Brahms)y by the Station Orchestra, conducted by Buschkötter. 9.15, Concert of Old Flemish Church Music by the Choir of Aachen Cathedral. Soloist: Winand Esser (Bass). Laudes Christo Redemptori, for Four-Part Mixed Choir (Obrecht); Address; Organ Solo: Ricercar (Willaert); Tu solus, qui facis mirabilia (des Près); Domine, refugium factus es (Dufay); Kyrie (van Ockeghem); Toccata for Organ (Pieters); Improperium (di Lasso), for Four-Part Mixed Choir. Bass Solo with Organ: Cognitavit Dominus (Rosenmüller); Dialogue for Four-Part Mixed Choir: Omnes amici mei (van Berchem); Address by the Bishop; Choral for Five-Part Mixed Choir: Venite ad me omnes (di Lasso). 10.15, News and Sports Notes.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—12 **Noon,** Gramophone Concert: Adagio from the Fourth Symphony, in B Flat (Beethoven); Two Songs (Schubert): (a) Nacht und Träume, (b) Litanei; Variations on a Theme by Bach (Liszt); Siegfried Idyll (Wagner). 1.0 **p.m.,** News, Weather, and Time. 1.15, Gramophone Concert of Weber's Music: Three Arias from Der Freischütz; Overture and Ocean Aria from Oberon; Perpetuum mobile; Larghetto; Songs: (a) Drei Sterne, (b) Brüder, streckt nun die Gewehre; Exchange Quotations after the Concert. 2.0, Film Review. 2.30, Talk for the Unemployed. 3.0, Programme for Children. 3.35, Exchange and Market Prices. 4.0, Concert by the Station Orchestra, conducted by Hilmar Weber: Overture in C in the Italian Style, Op. 170 (Schubert); Serenade in F, Op. 24 (Klengel); Melodies from Hanneles Himmelfahrt (Paul Graener); Romance from the Fourth Symphony, Op. 120 (Schumann); Four Movements from the Märkische Suite, Op. 92 (Kaun); Overture, Coriolanus (Beethoven). 5.30, Weather and Time. 5.50, Exchange Quotations. 6.0, Gardening Talk. 6.15, Notes for Tax-payers. 6.30, Spanish Lesson. 6.50, Talk by Captain Hermann Köhl on the Fifth Anniversary of his Bremen Flight. 7.0, Transmission for all German Stations, relayed from **Berlin (Witzleben).** 7.30, Talk: State Insurance for Apprentices. 8.0, Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer: Tragic Overture, Op. 81 (Brahms); Symphonic Variations on the Choral Wer nur den lieben Gott lässt walten (Georg Schumann); Symphony No. 4 in C Minor (Schubert). 9.0, News Bulletin. 9.10, Mensch aus Erde gemacht—Drama (Friedrich Griese). 10.30, News Bulletin. 10.45 (approx.), Orchestral Concert: Three Preludes (Bach); Orchestral Suite No. 3 (Wedig); Nocturne (Trapp); Overture, Medea (Cherubini); Abendlied (Pittrich); Schlummerlied (Brahms). 12 **Midnight** (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—7.30 **p.m.,** Radio Gazette for Lyons and the South East. 8.30, Orchestral and Vocal Concert. Mme. Clody Lamotte (Soprano) and Roger Bizet (Baritone). After the Concert, News Bulletin.

LINZ.—See **Vienna.**

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—11.30 **p.m.,** Programme relayed from **Madrid (EAJ7),** followed by Radio Chronicle. 1.0 **a.m. (Friday),** Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—8.0 **p.m.,** Chimes, Exchange Quotations, Radio Journal, and Programme for Children. 9.15, News Bulletin and Political Review. 9.30 **to 10.0,** Interval. 10.0, Linguaphone English Lesson. 10.30, Chimes, Time Signal and Political Review. 10.45 (approx.), Gramophone Concert. Part I—Act III of Parsifal—Opera (Wagner); Part II—Extracts from Missa Solemnis (Beethoven). 12.45 **a.m. (Friday),** News Bulletin. 1.0, Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—5.50 **p.m.,** Light Music on Gramophone Records. 6.0, Talk. 6.15, See **Prague.** 6.30, German Transmission: Talk on Josef Kainz. 7.0 till Close Down, See **Prague.** 11.0 (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg and Kaiserlautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—5.0 **p.m.,** Orchestral Concert, conducted by Erich Kloss: Overture, L'isola disabitata (Haydn); Andante from the Octet (Schubert); Selection from Hapsel and Gretel (Humperdinck); Andante cantabile (Beethoven); Abendlied (Schumann); Trost (Liszt). 6.5 (from **Nürnberg**), Talk: Protestant Churches to which Pilgrimages are made. 6.25, Agricultural Talk. 6.45, Time, Weather, and Agricultural Notes. 7.0, Transmission for all German Stations, relayed from **Berlin (Witzleben).** 8.0, Orchestral Concert, conducted by Hans A. Winter. 9.25 (from **Nürnberg**), Frankische Passion, interspersed with Frankish Folk Songs. 10.20, Time. Weather, News, Sports Results and Taxation Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredrikstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—10.30 **a.m.,** Divine Service, relayed from **Stavanger, 1,247 kc/s, 240.6 metres.** 1.0 **p.m.,** Religious Programme, relayed from **Fredrikstad.** 5.30, Light Music on Gramophone Records. 6.45, Readings. 7.15, Weather Forecast and News Bulletin. 7.30, Talk on Easter Hymns. 8.0, Time Signal 8.1, Concert by the Station Orchestra, conducted by Hugo Kramm. Overture, Easter (Rimsky-Korsakov); Concerto for Two Violins and Strings (Bach); Good Friday Magic from Parsifal (Wagner); Two Icelandic Melodies (Svendsen); Ave Verum (Mozart); Selection from The Messiah (Händel); Melody (Grieg); Angélus (Massenet); Stabat Mater (Rossini). 9.40, Weather Forecast and News Bulletin. 10.0, Topical Talk. 10.15 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—8.0 **p.m.,** Dopolavoro Notes, Agricultural Talk, and Giornale Radio. 8.20, Light Music on Gramophone Records. In an interval at 8.30, Time and Announcements. 8.45, Variety Concert: Orchestra, Marcia grottesca (Frontini); Tenor Solo, Autunno (De Curtis); L'ultima rumba (Oneglio); Tenor Solo, Viato a vuje (De Curtis); Soprano Solo, Catene (Penna); Tenor Solo, Te quiero (Redi); Orchestra, Golf (Mascheroni); Sotto il cielo dell'Avana (Ruccione); Tenor Solo (Kálmán); Soprano Solo, Buona notte, Billie (Caslar); Se ti ritiri tu (Cioffi). 9.30, The Poet—One Act Comedy (Niccodemi). 10.0, Concert (contd.). Melody for Orchestra; Tenor Solo, Biddizza chianiota (Caracciolo); Soprano Solo, La faufara di Pinocchio (Ferretto); Tenor Solo, Rumba di maggio (Di Lazzaro); Osa, vola, torna (Ascenso); Tenor Solo, I ma rricordo e te! (De Curtis); Soprano Solo, Night in Saragossa (Rohly); Ah Willy (Hayos); Pippo (Chessi); Pasodoble, Tayo (Gnecco); Fischia che ti passa (Arù). 10.55, News Bulletin.

APRIL 13th **THURSDAY** *continued*

PARIS

EIFFEL TOWER (FLE), 207.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals). **–3.0 to 4.15,** Instrumental Concert with Songs: Sonata for Flute and Pianoforte (Bach); Ariette from the Actus tragicus (Bach); Air from the Magnificat (Bach); Two Chorals (Bach-Busoni). **3.30,** Exchange Rates. **3.45,** Concert (contd.). Sacred Songs (Beethoven); Sonata in A for Pianoforte and 'Cello (Beethoven). **4.15 to 4.50,** Exchange Rates. **6.45,** Talk on the Theatre. **7.0,** Le Journal Parlé. **8.20,** Weather. **8.30,** Gramophone Concert. Part I—Sacred Music: Gregorian Chants; Toccata and Fugue in D Minor for Organ (Bach); Requiem for Choir and Orchestra (Fauré); Panis Angélicus (Franck); Part II—Classical Music: Overture, Iphigenie en Aulide (Glück); Concerto for Organ (Handel); Funeral March from The Twilight of the Gods (Wagner). **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Programme for Children. **7.30,** Light Music on Gramophone Records. **8.0,** Agricultural Talk. **8.15,** Interval. **8.30,** Athalie—Tragedy (Racine), with Music by the Station Choir and Orchestra. **10.30,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture. **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Protestant Address. **12.30 p.m.,** Orchestral Concert: Overture, Nebuchadnezzar (Verdi); Selection from Le Pré aux clercs (Hérold). Gramophone Records by Toti dal Monte: (a) Aria from Falstaff (Verdi), (b) Aria from La Sonnambula (Bellini), (c) Aria from Lucia di Lammermoor (Donizetti); Selection from Surcouf (Planquette). Gramophone Records by Georges Vorelli: (a) Song (Codini), (b) Marquita (Schertzinger), (c) Pourquoi je t'aime (Bosc); Selection from Louise (Charpentier); Ballet Music from Véronique (Messager). In the intervals at **1.0,** Exchanges, News, and Weather, and at **1.30,** Exchange. **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.30,** Gramophone Records. **6.45,** Legal Talk. **7.0,** Talk: French Poetry since 1870. **7.20,** Orchestral Concert: Berceuse (Ravel); French Suite (Perilhou); The Talking Doll (Infante). **7.45,** Review of the German Press. **8.0,** Rain—Play (Somerset - Maugham), adapted by M. de Carbuccia. In the intervals at **8.30,** News and Weather, at **8.40,** Review by Bonmand, and at **9.15,** Press Review and News. **10.0,** Gramophone Concert of Modern Italian Opera Music: Selection from Iris (Mascagni); Sicilienne, from Cavalleria rusticana (Mascagni); Two Arias from Mephistophelès (Boito); Ah, pescator affenda l'esca, and O monumento, from La Gioconda (Ponchielli); Aria from Resurrection (Alfano).

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Realyed by **W8XK** on **48.86 metres** and **25.27 metres.—10.0 p.m.,** Work-a-day Thoughts. **10.5,** Business News. **10.15,** Ballroom Promenade. **10.30,** Weather Report. **10.32,** Market Reports. **10.45,** Programme to be announced. **10.57,** David Lawrence Dispatch. **11.0 to 12.15 a.m. (Friday), New York** Relay. **11.0,** Homay Bailey. **11.15,** Dick Daring. **11.30,** Singing Lady. **11.45,** Little Orphan Annie. **12 Midnight,** Our Daily Food by George Rector's Cooking School. **12.15 a.m.,** Time Signal. **12.16,** Weather Report. **12.17,** Teaberry Sport Review. **12.22,** Press News Reeler. **12.29,** Temperature Report. **12.30,** KDKA Orchestra. **12.45,** Today's News, by Lowell Thomas, from **New York.** **1.0,** Pepsodent Amos 'n' Andy, from **New York.** **1.15,** Concert Footlights. **1.45,** The Townsend Murder Mystery. **2.0 to 5.1, New York** Relay. **2.0,** Captain Diamond's Adventures. **2.30,** Time Signal and Rin Tin Tin Thrillers. **2.45,** Thurston, the Magician. **3.0,** Death Valley Days. **3.30,** Wayne King's Orchestra, with Lady Esther. **4.0,** Carson Robinson's Pioneers. **4.15,** Vic and Sade. **4.30,** Homay Bailey and Orchestra. **4.45,** Prof. McLallen Sara and Sassafras. **5.1,** Teaberry Sport Review. **5.11,** Temperature Report. **5.12,** Weather Report. **5.13,** KDKA Artist Bulletin. **5.15,** Press Last Minute News Flashes. **5.20,** Bertha Schmid (Soprano). **5.30,** Smith Ballew and his Orchestra. **5.58,** KDKA Artist Bulletin. **6.0,** Hotel McAlpin Orchestra, from **New York.** **6.30,** Time Signal and Goodnight.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**5.10 p.m.,** Talk on Economics. **5.20,** Programme for Children. **5.50,** Variety Music on Gramophone Records. **6.5,** Agricultural Report. **6.15,** Talk for Workers. **6.25,** News in German. **6.30,** German Transmission: Agricultural Report and Talk. **7.0,** Chimes. **7.1,** News Bulletin. **7.10,** English Lesson. **7.25,** Talk. **7.30,** Neklan—Historical Tragedy in Five Acts (Zeyer). In the interval at **9.0,** Time Signal. **10.0,** Time Signal. **10.1,** News Bulletin. **10.15,** Brass Band Concert. **11.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

Sottens, 743 kc/s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.—6.0 p.m.,** (from **Lausanne**), Sports Talk. **6.20** (from **Geneva**), Esperanto Talk. **6.35** (from **Lausanne**), Italian Lesson. **7.0** (from **Geneva**), Weather, Answers to Correspondence and News. **7.30** (from **Geneva**), Theatre Review. **8.0** (from **Geneva**), Concert. **9.0,** Concert by the Radio-Suisse Romande Orchestra. **10.0,** News and Weather. **10.15** (approx.), Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—**4.0 p.m.,** Mandoline Concert of Opera Overtures: Oberon (Weber); Il Seraglio (Mozart); Fra Diavolo (Auber); Figaro (Mozart); La Traviata (Verdi); The Barber of Seville (Rossini). **5.0,** Talk. **5.30,** Concert. **6.0,** Talk on Wireless. **6.30,** English Lesson. **7.0,** Weather Forecast. **7.5,** Concert of Romantic Music by the Radio Orchestra, conducted by Parups. **8.0,** News. **8.20,** Pianoforte Recital. **8.50,** Concert of Romantic Music (contd.): Evening Bells (Amadei); Valse triste (Sibelius); Selection from Faust (Gounod). In the interval at **9.0,** Weather and News. **9.30,** Concert of Light Music. **10.30** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11.810 kc/s, 25.4 metres.—1.0 p.m.,** Time and Announcements. **1.2,** Humorous Talk. **1.5 to 2.15,** Orchestral Concert. In the interval at **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Children's Radio Review. **5.10,** Announcements. **5.15,** Exchange and Giornale Radio. **5.30 to 6.15,** Song and Violin Recital of Sacred Music. **6.45 (Naples),** Shipping and Sports Notes. **6.55,** Agricultural and Dopolavoro Notes. **7.15,** Giornale Radio. **7.30,** Religious Address: Preparation for the Holy Year. **8.0,** Time and Announcements. **8.15,** Light Music on Gramophone Records. **8.30,** Sports Notes and Tourist Report. **8.45,** Symphony Concert conducted by Giuseppe Mulè; Part I: Andante for Strings and Organ (Nardini-Zuelli); Jefte Oratorio for Soloists, Choir, and Orchestra (Carissimi); Talk on Literature and Art. Part II: Prelude to the oratorio Il cieco di Gerico (Mulè); Consecration and Finale from the First Part of The Passion (Perosi); Duet, Solo, and Offertory from Requiem (Verdi). **10.55,** News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.—1.0 a.m. (Friday),** Southern Jubilee Quartet, from **New York.** **1.15,** Stock Reports. **1.30 to 4.0, New York** Relay. **1.30,** Donald Novis (Tenor). **1.45,** The Goldbergs—Comedy Sketch. **2.0,** Fleischmann Hour. **3.0,** Capt. Henry's Show Boat. **4.0,** Lucky Strike Hour, from **New York,** followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **BASLE, 1,229 kc/s, 244.1 metres;** and **BERNE, 1,220 kc/s, 245.9 metres.—12.28 p.m.,** Time Signal from Neuchâtel Observatory. **12.30,** Weather and News. **12.40** (from **Basle**), Wind Instrument Concert on Gramophone Records. **1.35,** Weather and Exchange. **1.40 to 3.30,** Interval. **3.30** (from **Zürich**), Talk for Women. **4.0** (from **Zürich**), Orchestral Concert of Light Music. **5.0** (from **Zürich**), Gramophone Concert of Popular Music. **5.30,** Weather. **5.35 to 6.30,** Interval. **6.30** (from **Basle**), Talk: Contracts between Employer and Employee. **7.0,** Time, Weather and Traffic Report. **7.15** (from **Basle**), Elementary Italian Lesson. **8.0** (from **Basle**), Swiss Songs by a Schoolboys' Choir. **8.25** (from **Basle**), Reading of Poems. **8.45** (from **Basle**), Pianoforte Recital by Eduard Henneberger. **9.20** (from **Basle**), Funeral Music, Op. 30, for Twelve Wind Instruments (Luttringshaus). **9.30,** Weather and News. **9.40** (from **Zürich**), Concert by the Radio Orchestra. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres, 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.—4.45 p.m.,** Shorthand Lesson. **5.5,** Popular Music on Gramophone Records. **5.30,** Talk on Hygiene. **5.40,** Folk Music. **6.15,** Gramophone Cabaret. **6.45,** Elementary English Lesson. **7.15,** Weather and News. **7.30,** Talk. **8.0,** Military Band Concert, conducted by Per Grundström. Overture, Luisa Miller (Verdi); Waltz from Zigeunerprimas (Kálmán); Selection from The Vagabond King (Friml); Ballet Music from Sicilian Vespers (Verdi); Selection from Carmen (Bizet). **9.0,** Talk on Foreign Politics. **9.20,** Sjöberg Programme. **9.45,** Weather and News. **10.0,** Orchestral Concert. Hungarian Comedy Overture (Keler-Bela); Waltz, Très jolie (Waldteufel); Japanese Serenade (Bonelli); Children's Suite (Ansell); Waltz, La coquette (Olsson); Tango, Wenn Du liebst (Weezel); Potpourri (Lenschner). **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Gramophone Concert of Classical Music. **12 Noon,** Orchestral Concert, conducted by Maurice de Villers: Heroic Overture (Handel); Three Arias from Stabat mater (Rossini); Offertory and Benedictus from the Royal Hungarian Mass (Liszt). **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Orchestral Concert (contd.): Wagner Music: Prelude to Lohengrin; Forest Murmurs, from Siegfried; Selection from Parsifal: (a) Prelude, (b) Good Friday Magic, (c) The Grail Scene. **2.0,** Programme for Children. **3.0 to 4.15,** Interval. **4.15,** French Elocution Lesson. **4.30,** Programme for Children, relayed from **Bordeaux-Lafayette.** **6.0,** Talk in German: Mediæval France. **6.15,** Talk for Housewives. **6.30,** Stabat mater—Oratorio (Pergolesi), by the Station Orchestra, conducted by Maurice de Villers. Soloists: Jeanne Wild and Annette Brincour (Songs). **7.30,** Time and News. **7.45,** Sonata in G (Franck) on Gramophone Records. **8.15,** Press Review in German and Lottery Results. **8.30,** Orchestral and Choral Concert, conducted by Maurice de Villers. Soloist: Annette Brincour (Mezzo-Soprano). Cantata in Two Parts for Mezzo-Soprano and Choir; Sainte Marie Magdeleine (D'Indy); Lyrical and Biblical Scene in Three Tableaux, Le jugement de Salomon (Renaud). In an interval at **9.30** (approx.), Press Review in French. **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW., and **Freiburg, 527 kc/s, 570 metres.—10.40 a.m.,** Recital of Patriotic Songs by Eberhard Schrempf (Baritone). **11.15,** Programme arranged by the Post Office, with Gramophone Records. **11.55,** Weather Forecast. **12 Noon,** Programme from **Munich.** **1.15 p.m.,** Time, News, Weather and Programme Announcements. **1.30,** Concert from **Langenberg.** **2.30,** Spanish Lesson. **3.0,** Elementary English Lesson. **3.30,** See **Frankfurt.** **4.30,** Concert by the Symphony Orchestra, relayed from **Pforzheim:** Intermezzo (Reger); Liebeswalzer (Reger); Egyptian Ballet (Luigini); Minuet (Seeger). **5.50,** Time, Weather and Agricultural Notes. **6.0,** Choral Concert: Du gehst in den Garten beten (Silcher); Roundelay: Ein Lämmlein geht (Hassler); O Haupt voll Blut und Wunden (Bach); Ach, sich ihn dulden, bluten, sterben (Knecht); Herzliebster Jesu, was hast du verbrochen (Bach); Roundelay: O Traurigkeit, O Herzeleid; Roundelay: Wir danken dir, Herr Jesu Christ; Setze dich, mein Geist, ein wenig (Walser). **6.30** (from **Freiburg**), Talk on Emil Gött on the Twenty-fifth Anniversary of his Death. **6.55,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben).** **8.0** (from **Mannheim**), Beethoven Sonatas: Sonata in C, Op. 53; Sonata in F Minor, Op. 57. **8.45** (from **Karlsruhe**), Talk: German Cultural Policy. **9.15** (from **Freiburg**), Concert of Old Chamber Music by the Freiburg Trio: O dulcis Maria (Schlick); Ovos omnes (Obrecht); Wenn ich nur hab dich, Herr, allein (Samuel Scheidt). **10.0,** Time, News, Weather and Programme Announcements. **10.20,** Instrumental Solo Music on Gramophone Records. **11.0,** Life and Death (Max Reger)—a Lyric Cantata on Sacred Poems of the Sixteenth, Seventeenth, and Eighteenth Centuries, for Soloist, Speaking Voice and Organ: Organ Prelude: Die Welt; Grablied; Leben und Tod; O, Herre Gott, nimm du von mir; Am Ende; Lass dich nur nichts dauern; An Gott; Bitte um einem religen Tod Wenn ich erwache, denk ich dein; Dein Wille, Herr, geschehe; Abend; Am Abend. **11.40** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**5.45 p.m.,** Impressions d'Italie (Charpentier), by the Symphony Orchestra. **6.0,** News Bulletin. **6.15,** Instrumental Solos: (a) 'Cello: Les Cloches (Debussy), (b) Flute: Madrigal (Gaubert), (c) Violin: Slav Dance (Dvorák), (d) Polish Song (Liszt). **6.30,** Programme for Children. **7.0,** Songs from Sound Films. **7.15,** News, Racing Results and Market Prices. **7.25,** Local News Bulletin. **7.30,** Accordion Music. **7.45,** Opera Music: Entr'acte from Carmen (Bizet), Selection from Samson and Delilah (Saint-Saëns), and Prelude to Werther (Massenet). **8.0,** Sacred Music: Stabat mater; Panis Angelicus (Franck); Chorale, No. 3 (Bach); Ave verum (Mozart). **8.15,** Music by a Viennese Orchestra: Melody (Arezzo); Waltz, Tales from the Vienna Woods (Joh. Strauss); Moonlight on the Rhine (Vollstedt); Potpourri of Viennese Melodies (Kronnegar); Wienertun zugel (Translateur). **8.45,** Extracts from Le Jongleur de Notre Dame—Opera (Massenet). **9.15,** Concert: March (Kretschmer); Choral (César Franck); Potpourri (Kálmán); Toujours ou jamais (Waldteufel); Prelude (Tchaikovsky). **9.45,** Concert: Part I: Opera Music: Selection from: (a) Le Cid (Massenet), (b) Faust (Gounod), The Fair Maid of Perth (Bizet). Part II: Military Music: Pepita (Neumann); March from Moïse (Rossini); Marche des petits soldats (Ganne). **10.15,** North African News. **10.30,** Concert for Listeners in Morocco: Vindobona (Leopold); Air from La Juive (Halévy); Chorus from Tannhäuser (Wagner); Si tu voulais m'aimer (Cazes); Potpourri of Sound Film Music (Borchert). **11.0 to 12 Midnight,** Programme in English by the I.B.C. **11.0,** Concert of Light Music by the I.B.C. (Ireland), Ltd. Orchestra: The Musical Die Spieluhr des Pompadours (Noack); Song, Her Name is Mary (Ramsay); Accordion Solo: Irish Jigs (Hannah); Selection from Rio Rita; Duet, To you it's only Ireland; Song, My Darling (Heymann); Orchestra: The Song of the Nightingale (Ailbout). **11.30,** Military Band Music: March, Blaze away; Selection from San Toy; Fantasia, The Battle of Waterloo; Descriptive Piece, a Voyage in a Troopship; Serenade (Heykens); Marche Lorraine (Ganne). **11.57,** I.B.C. Good-night Melody. **12 Midnight,** News, Weather and Announcements. **12.5 a.m. (Friday),** Dance Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.10 p.m.** till Close Down. See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 1,059 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.—5.10 to 6.0 p.m.,** Orchestral Concert. **6.35,** Giornale Radio, Agricultural and Dopolavoro Notes. **7.0,** Time and Giornale Radio. **7.30,** Religious Address: Preparation for the Holy Year. **8.0,** Announcements. Giornale Radio, Weather and Variety Music on Gramophone Records. **9.0,** Relay from a Theatre. In the Intervals: Talk, Announcements and Giornale Radio.

VATICAN CITY

15,120 kc/s (19.84 metres) (Morning) and **5,969 kc/s (50.26 metres)** (Evening); 10 kW. —**11.0 to 11.15 a.m.,** Religious Information in French. **8.0 to 8.15 p.m.,** Religious Information in Italian.

VIENNA

517 metres; 15 kW.; and **Graz, 852.1 metres; Innsbruck, 283 metres;** and **Klagenfurt, 453.2 metres; Linz, 245.9 metres;** and **Salzburg, 218.5 metres.—5.55 p.m.,** Parsifal—Opera (Wagner), relayed from the Opera House. In the intervals at **7.50** (approx.), Time, Weather, and Programme Announcements, and at **9.15** (approx.), News Bulletin. **10.45,** Snow Report.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Light Music on Gramophone Records. **1.20,** Weather Forecast. **1.25 to 3.10,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Popular Music on Gramophone Records. **3.35,** Talk: Women and Unemployment. **3.50,** Light Music on Gramophone Records. **4.25,** Elementary French Lesson. **4.40,** Talk on Hygiene. **5.0,** Variety Music on Gramophone Records. In the interval, Announcements. **5.40,** Topical Talk. **5.55,** Programme Announcements. **6.0,** Educational Talk. **6.20,** Musical Programme. **7.0,** Miscellaneous Items. **7.20,** Agricultural Report. **7.30,** Reading of Poems. **7.45,** Radio Journal. **8.0,** Talk on Music. **8.15,** Sacred Concert by the Warsaw Philharmonic Orchestra, a Mixed Choir and Soloists, relayed from the Philharmonic; Conductor, C. Wilkomirski; Soloists, S. Argasinska (Soprano), H. Bernasowska (Soprano), E. Szabranska (Mezzo-Soprano), C. Wiklinski (Tenor), and H. Merkel (Bass): Easter Cantata, Christ lag in Todesbanden (Bach); Soprano and Strings, Pâques à New York (Honnegar); Le Miroir de Jésus (Caplet), Oratorio for Soprano, Women's Choir, Orchestra, and Harp. In the interval, Talk on Easter. **10.40,** Sports Notes. **10.45,** Radio Journal. **10.55,** Aviation Weather Report and Police Notes.

WILNO

533 kc/s, 563 metres; 16 kW.—**6.0 p.m.,** See **Warsaw.** **6.20, Announcements, 6.25,** Musical Programme. **6.40,** Talk in Lithuanian. **6.45,** Talk. **7.0,** Miscellaneous Announcements. **7.15,** Sacred Songs. **7.30,** Miscellaneous Announcements. **7.45,** See **Warsaw.** **11.0** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

FRIDAY

APRIL THE FOURTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL — Good Friday service from Winchester Cathedral. Extracts from "Parsifal" (Wagner), from Queen's Hall.

LONDON REGIONAL — Light symphony concert.

MIDLAND REGIONAL — Sacred music from St. Mary's Church, Nottingham.

WEST REGIONAL — Service from St. Nicholas' Church, Bristol. "The Messiah" (Handel), from Cardiff.

ABROAD

BERLIN (Witzleben) — 7 p.m. The St. Matthew Passion (Bach), from the Garrison Church.

BRUSSELS (No. 1) — 2 p.m. Pergolesi's "Stabat Mater."

FRANKFURT — 7.15 p.m. The St. John Passion, from the Saalbau.

HAMBURG — 8 p.m. Bach's Mass in B Minor, from St. Nicholas' Church.

HEILSBERG — 10.20 p.m. Act 3 of "Parsifal" (Wagner), from Königsberg.

LJUBLJANA — 7 p.m. Opera: "Parsifal" (Wagner), from the Royal Opera House.

MADRID — 12 noon. The Seven Words from the Cross, relayed from the Church of San José.

PITTSBURGH — 4 a.m. (Saturday). Verdi's "Requiem" from New York.

ROME — 5.30 p.m. Concert from the Royal Academy of Saint Cecilia. 8.45 p.m. Oratorio: "The Resurrection of Christ" (Perosi).

STRASBOURG — 4.30 p.m. Bach's St. John Passion music.

TOULOUSE — 8.30 p.m. Berlioz' "Symphonie fantastique."

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.**—No Transmission.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Concert by the Station Orchestra: Oriental Dance (Pérez Moya); Selection from La Marseillaise (Caballero); Catalonian Caprice (Albeniz); Copla and Rondo (Wagener). **7.30,** Soprano and Tenor Recital with Music by the Station Orchestra. **10.0,** An Opera on Gramophone Records. **1.0 a.m. (Saturday)** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**5.30 to 6.30 p.m.,** Popular Music on Gramophone Records. **8.0,** Agricultural Notes, Tourist Report, and Dopolavoro Notes. **8.20,** Giornale Radio and News. **8.30,** Time and Announcements. **8.35** (approx.), Sacred Concert, relayed from the Church of St. Domenico; Conductor: Biagio Grimaldi; Soloists: Giacomo Dammacco (Tenor) and Lino d'Angelo (Baritone): Funeral Prelude (Mailly); Item to be announced; Cartilene melancolique (de Severac); In hora doloris (Bottazzo); Cortége funebre (Dubois); L'agonia del Redentore, for Soloists, Choir, and Organ (Vittadini). In the interval, Literary Notes. **10.30,** Popular Music on Gramophone Records. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**12 Noon,** Concert relayed from **Leipzig. 2.0 to 4.0 p.m.,** No Transmission. **4.0,** Talk: Great German Mystics. **4.30,** Concert. **6.0,** Eberhard Wolfgang (Möller) reads from his own Works. **6.30,** String Quartet in F Minor, Op. 95 (Beethoven). **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 10.0,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping.

BERLIN

WITZLEBEN, 419.5 metres; 1.5 kW.—**8.50 a.m.,** Address. **8.55,** Chimes and Morning Recital, followed by Chimes from Berlin Cathedral. **10.15,** Weather Report. **11.0,** A Poem on the Passion. **12 Noon,** See **Leipzig. 2.0 to 2.30 p.m.,** B-A-C-H — the Chronicle of a Family (Hans Nowak). **4.30,** Stabat Mater, Op. 15 (Lechthaler), by Gertrude Baumann (Soprano), Maria Peschken (Contralto), Willi Pelzer (Tenor), Hans Joachim Andresen (Baritone), Hans Priegnitz (Organ), the Station Orchestra and the Cecilia Chamber Choir, conducted by Pius Kalt. **5.0,** German Passion Songs by the Cecilia Chamber Choir, conducted by Pius Kalt. **5.15,** The Passion of the Christian Martyrs—A Sequence (Erwin Bartels and Wilhelm Boudriot). **5.45,** Of Suffering and Death—a Programme of Recitations. **6.45,** Introductory Talk to the **7.0 p.m.,** Transmission. **6.55,** Announcement. **7.0,** Transmission for all German Stations: The St. Matthew Passion (Bach), relayed from the Garrison Church, Berlin; The Berlin Philharmonic Orchestra, conducted by Georg Schumann, the Sing-Akademie Choir and Soloists: Amalie Merz-Tunner (Soprano), Emmi Leisner (Contralto), Georg A. Walter (Tenor), and Paul Lohmann (Bass-Baritone). **10.0,** Weather, News, and Sports Notes. **10.30,** Concert of Sacred Music, relayed from the Church Zunguten Herten, Commentary by B. Marguardt; Organ Choral: Wir danken dir, Herr Jesu Christ (W. F. Bach); Wir danken dir, Herr Jesu Christ (Seventeenth Century Melody); O Lamm Gottes unschuldig (arr. Eccard); Es ist vollbracht (arr. Kaminski); Weide mich und mache mich satt (Bach); O Traurigkeit, o Herzeleid (Schop); Nun ruh, Erlöser in der Gruft (Bach). **11.0** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**6.15 p.m.,** Song Recital by Helena Blahova. **6.40,** Talk. **6.55,** Talk on Housing. **7.0,** See **Prague. 8.45,** A Religious Play in Four Acts, with Music. **10.0,** See **Prague. 10.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.**—**10.0 a.m.,** Protestant Service and Sacred Concert of Bach Music. **11.0,** Reading (Jean Paul Richter). **12 Noon,** Good Friday Concert by the Franciscan Choir of Breslau-Carlowitz: Passion Song (Greiter); Abschied von Maria; Schöpfer aller Ding, König Christ Quoniam die ac nocte (di Lasso); O vos omnes (Vittoria); Geistlicher Maien. **2.0 p.m.,** News Bulletin. **6.15,** Organ Recital: Choral Partita: Da Jesus an dem Kreuze stund (Scheidt); Choral Prelude: O Lamm Gottes unschuldig (Pachelbel); Choral with Variations: Sei gegrüsst, Jesu gütig (Bach). **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 9.0,** The Fourteen Stations of the Cross-words, by Ruth Schaumann, Music by Johannes Reitz. **8.40,** Meditation (Friedrich Gogarten). **9.0,** Sacred Sonatas for Violin and Harpsichord (Franz von Biber) (1644-1704), by Hans Bassermann (Violin) and Kurt Hattwig (Harpsichord). **10.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **10.30** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**4.30 p.m.,** The Sufferings of Christ (Picka), by the Moravian Vocal Union. **5.5,** Religious Address. **5.20,** Gramophone Concert: Toccata and Fugue in E Flat (Bach); Songs my Mother taught me (Dvorák); Danse macabre (Saint-Saëns); Poème (Fibich); and Elegy (Dvorák); followed by Popular Music. **6.0,** German Transmission: News and Introductory Talk to the **8.15** Transmission. **6.15 to 6.30,** Extracts from German Oratorios and Cantatas on Gramophone Records. **7.0,** See **Prague. 7.10,** Talk on Psychology. **7.25,** See **Prague. 8.10,** Introductory Talk to the following Transmission. **8.15,** Requiem (Brahms) by the Brno Male Voice Choir, the Brno Symphony Orchestra, and Soloists, relayed from the Stadium; Conductor: O. Hawran. **10.0,** See **Prague. 10.15** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Giordano Concert on Gramophone Records: Selection from Fedora; Cena di Pasqua from Siberia. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Orchestra, conducted by M. Leemans: Spanish March, Bolero (Hügel); Waltz, Longchamps-fleuri (Waldteufel); Extase (Ganne); Ballet Music from Faust (Gounod); Violin Solo: Souvenir (Drdla); Tango from Paris-Méditerranée (Granichstaedten); Selection from The Student Prince (Romberg). **2.0,** Good Friday Programme arranged by the Belgian Catholic Radio Society—Stabat Mater—Oratoria (Pergolesi), with Commentary and Reading. **5.0,** Concert by the Radio Orchestra, conducted by Franz André: Russian Dance, Gopak (Bullérian); Three Oriental Miniatures (Fischers); Les airs du Poilu (Salabert); The Great Four (Robrecht); In the Gulf of Naples (Eilenberg); Segovian March (Berry); Selection from A Kiss in Spring (Kálmán); March (Faulx). **6.0,** Talk on Belgian Trade. **6.15,** Classical Music on Gramophone Records. **7.15,** Talk: The Importance of Physical Training. **7.30,** Legal Talk and Literary Review. **8.0,** Concert by a Vocal Quintet, accompanied by the Station Symphony Orchestra, coonducted by J. Kumps. Part 1.—Songs of the Second Empire. Part II.—Extracts from The Fair Maid of Perth—Opera (Bizet). **8.45** (in an interval), Programme for Soldiers and Ex-servicemen. **10.0,** Le Journal Parlé. **10.10,** Request Concert: Scarf Dance (Chaminade); Pierrette (Chaminade); Spanish Rhapsody (Liszt); Rustle of Spring (Sinding); Violin Solo: Jota Aragonesa (Sarasate); Ballet Music from Coppélia (Delibes). **11.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—**12 Noon,** Concert by the Small Station Orchestra, conducted by Leemans. **1.0 p.m.,** Le Journal Parlé. **1.10,** Popular Music on Gramophone Records. **2.0,** Good Friday Concert by the Catholic Radio Society: Extracts from La Redemption (Franck); Children's Choir and Mixed a-Capella Choir: Tristis est anima mea (Crocé); Recitation; Tenebrae factae sunt (Palestrina); Crucifix for Four Voices a-Capella (Lotti); Mater Dolorosa (Franck); Organ Solo: Funeral March from Saul (Handel); Three Gregorian Chants. Bible Reading: The Passion of Our Lord Jesus Christ. **3.0 to 5.0,** Interval. **5.0,** Concert by the Symphony Orchestra, conducted by J. Kumps: Concerto Grosso (Corelli); Aria (Bach); Adagio from the Italian Symphony (Mendelssohn); Interlude from Redemption (Franck); Elegy for 'Cello (Fauré); Selection from Le Jongleur de Notre Dame (Massenet); Selection from Mors et Vita (Gounod). **6.0,** Talk on Bach's St. Matthew Passion. **6.30,** Talk. **6.45,** Concert by the Small Station Orchestra, conducted by Leemans: Cortege antique (Hermite); Suite campestre (Amadei); Reverie (Luigini); Danza illirica (Escobar); Selection from Miss Decima (Audran); Andalusian Song (Fort). **7.15,** Talk: The Use of Ultra-violet Rays in Medicine and Science. **7.30,** Wireless Notes. **8.0,** The Seven Words on the Cross — Oratorio (Schutz) for Soloists and Orchestra. **8.30,** Chamber Music: Trio in G (Haydn); Trio in B Flat (Schubert). **9.10,** The Titanic Disaster—Radio Play (Schäke). **9.50,** Introduction and Allegro for Harp (Ravel) on Gramophone Records. **10.0,** Le Journal Parlé. **10.10,** Gramophone Records, Music from the St. John Passion (Bach); Symphonie pathétique (Tchaikovsky).

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Radio Journal. **5.30,** Divine Service, relayed from a Church.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW.—Also relayed on **840 metres** from **6.50 to 12 Midnight. 9.0 a.m.,** Divine Service Relay. **10.0,** Address from the University Church. **11.15,** Evangelical Service, followed by News and Concert by the Opera House Orchestra, conducted by Johann Ferencsik; Soloist: Oscar Kalman (Songs); Selection from Parsifal (Wagner); Good Friday Magic from Parsifal (Wagner); Melody from Khovanstchina (Mussorgsky); Nenia (Liadov); Symphonic Poem Tod und Verklärung (R. Strauss); Symphony in B Minor (the Unfinished) (Schubert). **5.0,** Concert of Sacred Music, relayed from a Church in Kobanya. **6.20,** Talk. **6.50,** Popular Music on Gramophone Records. **7.20,** Good Friday Thoughts. **7.45,** The Passion (Bach), relayed from the Academy of Music; The Budapest Concert Orchestra, conducted by Edwin Fischer. **12 Midnight,** Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time and Chimes from the Town Hall. **12.5 p.m.,** Concert by Mogens Hansen's Instrumental Ensemble. **1.0 to 3.0,** Interval. **3.0,** Chamber Music Concert. Chamber Trio in E Flat for Oboe, Violin, Harpsichord and 'Cello (Händel); Sonatas for Violin and Harpsichord after Old Biblical Engravings (Biber): (a) Christi Kreuztragung, (b) Gang nach Golgotha, (c) Die Kreuzigung Christi; Chaconne for Harpsichord (Händel); Trio in C Minor for Flute, Violin and Harpsichord, with 'Cello Obbligato (Bach); Royal Concerto, No. 2, in D, for Violin, 'Cello and Harpsichord (Couperin); Trio in B Minor for Flute, Oboe and Harpsichord, with 'Cello Obbligato (Loeillet); Trio Sonata in A Minor for Violin, 'Cello and Harpsichord. **5.0** (also relayed by **Skamleback** on **31.51 metres**), Divine Service from Christiansborg Castle Church. **6.20,** Ornithological Talk. **6.50,** Weather Report. **7.0,** News Bulletin. **7.15,** Time Signal and Sports Notes. **7.30,** Talk: Northern Schleswig. **8.0,** Chimes from the Town Hall. **8.1,** Talk on the Following Transmission. **8.15,** Concert of Sacred Music, relayed from Christiansborg Castle Church. The Copenhagen Boys and Male Voice Choir, conducted by Mogens Woldike, and Bernhard Christensen (Organ). Organ Choral (Strungk); Hymn for Soprano, Strings and Organ (Neumark); Variations for Organ on a Sixteenth-century Melody (Scheidt); The Seven Words on the Cross—Passion Music (Schutz), for Soloists, Choir, Strings and Organ. **9.10,** Easter—Play in Three Acts (Strindberg). **10.40,** String Quartet in D for Two Violins, Viola and 'Cello (Mozart). **11.5** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsburg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,327 kc/s, 225.9 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C. C. Danvers Walker, B. McNabb and F. Lamping announcing. **5.30 p.m.,** Concert of Chamber Music for Southampton and Winchester Listeners: Ave Maria (Bach-Gounod); Scherzo from the Trio in B Flat (Beethoven); Minuetto from the Quartet in F (Beethoven); Scherzo from the Trio in D minor (Arensky); O Star of Eve, from Tannhauser (Wagner); Ave Maria from Cavalleria rusticana (Mascagni); Angel's Serenade; Scherzo from the Quartet in D minor; Comfort ye my People; Every Valley shall be filled; Andante Cantabile from the Quartet, Op. 11 (Tchaikovsky); Allegro from the Quartet in F. **6.15,** Concert for Bournemouth and Weymouth Listeners: Orchestra: The Sacred Hour; Solo: If with all your Hearts; Choir: Stabat Mater; Quartet: Holy, holy, holy; Solo: He shall feed His Flock; Orchestra: The Sanctuary of the Heart; Solo: The People who walked in Darkness; Choir: Why do the Nations; Quartet: Eternal Father; Solos: (a) Hear my Prayer, (b) Jesu, Lover of my Soul; The Wayside Shrine. **10.0 p.m.** till Close Down. Programme in English by the I.B.C. **10.0,** Concert by a Symphony Orchestra: Overture, Il Seraglio (Mozart); Hungarian Rhapsody No. 2 (Liszt); Song without Words in A minor (Tchaikovsky); Selection from Tannhauser (Wagner); Autumn (Chaminade); Morning, from Peer Gynt Suite (Grieg); Violin Solos: (a) Minuet in D (Mozart), (b) Adagio in A (Schubert); Night on the Bare Mountain (Mussorgsky); Träume (Wagner). **10.50,** Sacred Programme: Organ Solo: Prière à Notre Dame (Boeilli); Scripture Reading: The Sermon on the Mount; Organ Solo: Come ye Children. **11.0,** Choral Concert of Sacred Music: Abide with me; God so loved the World; Solo: I know that my Redeemer liveth; Organ Solo: The Storm; When I survey the Wondrous Cross; Onward Christian Soldiers; The Day thou gavest, Lord, is ended. **11.30,** Orchestral and Organ Music: Largo (Handel); Berceuse from Jocelyn (Godard); Violin and Organ Duet: Because (d'Hardelot); Elegy (Massenet); Melody in F (Rubinstein); Violin and Organ Duet: A Perfect Day (Jacobs Bond); On Wings of Song (Mendelssohn); Evensong (Blumenthal). **12 Midnight,** Club Concert for Braemer Listeners: Nibelungen March; Negro Spirituals: (a) Bye and Bye, (b) I got a Robe; Organ Solo: Le Cygne; For Valour; Songs: (a) Brothers of the Empire, (b) The Yeomen of England, (c) A Fond Kiss; Organ Sonata in G; Songs: (a) The Volunteer Organist, (b) Rocked in the Deep;

Returning Home; Negro Spirituals: (a) Go Down Moses, (b) Deep River; Bagpipe Solo: Highland Reel; Selection from Lohengrin. **1.0 a.m. (Saturday),** Vocal Concert: Solveig's Song from Peer Gynt (Grieg); I hear you calling Me; Love's pleading; Aria from Il Trovatore (Verdi); Liebestraume (Liszt); Torna a Sorriento (Curtis); Minuet (Mozart). **1.30,** Concert by a Hawaiian Band: Aloma (Bowers); Home (Strecden); Julien (Donata); Save the last Dance for me (Hirsch); Hawaiian Twilight; Bone Festa; Kamschamola; Hawaiian Medley. **2.0 a.m.,** Popular Duets: Down the Lane to Home sweet Home; Dreaming of my Indiana Sweetheart; Say a little Prayer for me; Trio: A Night for Happiness; My Baby just cares for me; You'll be mine in Apple Blossom Time; My Heart belongs to the Girl; Trio: The Wedding of the Ark. **2.30,** Concert of Light Music: Irish Set Dance; Ballet russe; Barn Dance; The Midshipmite; Reels; Strip the Willows; Strathspeys; Petronella. **2.57,** I.B.C. Good-night Melody. **3.0** (approx.). Close Down.

FLENSBURG. See **Hamburg.**

FLORENCE. See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **CASSEL, 1,220 kc/s, 245.9 metres;** and **TRIER, 1,157 kc/s, 259.3 metres.—2.45 p.m.,** Mass in B Minor (Bach) on Gramophone Records. **5.0,** Good Friday Concert, relayed from the Cathedral, Fulda; Organ Prelude, Chaconne (Bach); Talk; Extracts from the Alsfeld and Frankfurt Passion Play (Fifteenth-Sixteenth Century); Aria, Du lieber Heiland du, from The St. Matthew Passion (Bach); Old Religious Poems; Organ Solo; Herzliebster Jesu, was hast du verbrochen? (Brahms); Modern Religious Poems; Song: Stabat Mater (Haydn); Talk: Religion in Art Choral: Regina coeli laetare; Reading: Marias Osterfreude; Organ Choral: Christ ist erstanden (Bach). **6.45,** Bach Organ Recital by Helmut Walcha; Partita on Sei gegrüsst Jesu gütig; Choral Prelude, O Mensch bewein' dein Sünde gross; Passacaglia in C Minor. **6.45,** Religious Address; The Cross. **7.15,** The St. John Passion, relayed from the Saalbau; The Radio Symphony Orchestra, Two Choirs and Soloists. **10.0,** Time, News, Weather, and Sports Notes.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.—2.50 p.m.,** Good Friday Concert by the Hamburg Philharmonic Orchestra, conducted by José Eibenschütz. Soloist: Gerhard Gregor (Organ). Prelude, Choral and Fugue (Bach); Maurerische Trauermusik (Mozart); Overture, Coriolanus (Beethoven); Theme and Variations on Death and the Maiden, for String Orchestra (Schubert); Prelude to Parsifal (Wagner); Hymn to the Rising Sun, for String Orchestra, Organ and Harp (Mandl). **4.0** (from **Bremen**), Calvary Concert by the St. John's Church Choir, with an Address. Soloists: Fritz Schweinsberg (Bass) and Siegfried Janssen (Organ). Organ Solo: Crucifixus from the Mass in B Minor (Bach). Choir: Miserere (Allegri); Talk; Gregorian Chant, Jeremiah's Lamentation (Palestrina); Gregorian Choral, Ecce lignum; Organ Solo: Da Jesus an dem Kreuze hing; Choir and Bass: (a) Populemeus (Vittorio), (b) Tenebrae factae sunt (M. Haydn); Address: The Message of Calvary in Modern Times; Choir and Bass: Gregorian Chant, O crux ave, spes unica; Choir: Adoramus te Christe (Pitoni). **5.0,** The Ploughman and Death (Johannes v. Saaz, 1400), arranged as a Play by Kurt Machleidt. **5.45** (from **Hanover**), German Martyrs—Radio Sequence: I, Andreas Hofer; II, The Wesel Grave; III, The Dusseldorf Dead; IV, Schlageter (Richard Trunk); V, Horst Wessel; VI, You have Conquered (Horst Platen). **6.45,** Sports Notes. **6.50,** Weather. **7.0,** Transmission for all German Stations. **8.0,** Mass in B Minor (Bach), by the Flensburg Chamber Orchestra, Choir and Soloists, relayed from St. Nicholas' Church. **10.30,** Time, Weather, Announcements, Sports Notes and Police Report.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.—9.0 a.m.,** Protestant Service. **11.0,** Weather Forecast. **11.30,** The Dance of Death—a Play. **12 Noon,** See **Leipzig. 2.0 p.m.,** Talk: The Old Military Cemetery in Königsberg. **2.30,** Talk: The Exhibition of Old Lace in Königsberg Castle. **3.0,** Programme for Children. **3.30** (from **Danzig**), Concert by the Municipal Theatre Orchestra: Overture, Egmont (Beethoven); Selection from Fidelio (Beethoven-Schreiner); Larghetto from the Second Symphony (Beethoven); Largo (Händel); Overture, The Magic Flute (Mozart); Siegfried Idyll (Wagner); Overture, Euryanthe (Weber). **5.0,** Talk: Good Friday in East Prussian Custom and Legend. **5.39,** Talk: Seven Centuries of East Prussian History—Frederick the First. **6.0,** Chamber Music by the Ninke Trio; Soloist: Ilonka von Ferenczy (Soprano); Sonata in G Minor for Violin, 'Cello, and Pianoforte (Daiff-Abaco); Sacred Songs and Arias: (a) An Deinem Kreuzesstamme (J. W. Franck), (b) Jesus in Gethsemane (Ph. E. Bach), (c) Ueber die Finsternis (Ph. E. Bach), (d) Aria from The Messiah (Händel); Trio in E Flat, Op. 70, No. 2 (Beethoven). **7.0,** Transmission for all German Stations. **8.0,** The Passion—Good Friday Oratorio (Heinrich von Herzogenberg) for Mixed Choir, Soloists, Strings, and Organ, relayed from the Sackheimer Kirche, **Königsberg. 9.20,** A Picture of the Modern World. **9.50,** News Bulletin. **10.10,** Introductory Talk to the Following Transmission. **10.20,** Act III of Parsifal—Opera (Wagner), relayed from the Königsberg Opera House.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—**12.40 to 4.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **12.40,** Time Signal. **12.41,** Popular Music on Gramophone Records. **1.10,** Recital by Jan Nieland (Organ). Jac van Kempen (Tenor) and Louis Zimmermann (Violin). **2.40,** An Easter Story (Kleijn). **3.10,** Concert by the Concertgebouw Chamber Orchestra, conducted by Albert van Raalte. Soloists: Rosa Spier (Harp), N. Klasen (Flute) and F. Helmann (Violin). Selection from Orpheus (Gluck); Concerto for Harp and Flute (Mozart); Serenade, Op. 8 (Beethoven); Concerto in E for Violin (Bach); Serenade (Sekles). **4.40 to 8.40,** Programme of the Workers' Radio Society (V.A.R.A.). **4.40,** Concert by the Favoriet Trio. Gavotte (Sgambati); Artifices (Saunier); Primavera (Levidis); Rondo (Reger); Oh, je souffre (Rachmaninov); Viennese Dance (Gärtner); Crescendo (Lasson); Slav Fantasia (Dvorák-Kreisler); Sierra Morena (Monasterio); Selection from La Bohème (Puccini). **5.30,** Programme for Children. **6.10,** Organ Recital by Johan Jong. Soloist: A. de Booy (Song). Selection from Lysistrata (Lincke); Songs: (a) Still wie die Nacht (Böhm), (b) Serenade (Heykens); Selection from Rose Marie (Friml); Songs: (a) Warum Meyer-Helmund), (b) Quand l'amour meurt (Crémieux); Serenade (Schmalstich); Song of Songs (Moya). **6.50,** Orchestral Concert. **7.20,** Talk on Soviet Russia. **7.40,** Quartet Concert, with Songs by Susie Klein. **8.40,** Programme of the Liberal Protestant Radio Society (V.P.R.O.). Divine Service, relayed from The Hague, followed by Gramophone Records and Address. **11.40,** V.A.R.A. Programme. Light Music on Gramophone Records. **12.40 a.m. (Saturday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**11.40 a.m.** till Close Down. Programme of the Christian Radio Society (N.C.R.V.). **11.40,** Trio Music. Trio, Op. 99 (Schubert); Geister Trio, Op. 70, No. 1 (Beethoven). **12.40 p.m.,** Police Notes. **12.55,** Gramophone Records. **1.40,** Organ Recital by Ferdinand Klock, with Soprano Solos by Mlle. Machteld Hagenbeek. Prelude and Fugue (Bach); Altes Mailied in der Bittwoche (Böhme); Es ist vollbracht (Bach); Jesus neigt sein Haupt und stirbt (J. W. Franck); Lass mich dein sein und bleiben (Strungk); Three Preludes (Riemenschneider); Prelude (Bach); Dutch Melodies (arr. v. d. Horst); Extract from the Symphonic Poem, Life (Nicholl). **2.40 to 3.10,** Interval. **3.10,** Religious Address. **3.40,** Talk for Women. **4.10,** Trio Concert. Prelude, Anacreon (Cherubini); Potpourri, Im Rosengarten Mendelssohns (Urbach); Panis Angélicus (Franck); Suite from Izeyl (Pierné); Gramophone Records; Prelude to Iphigenia in Aulis (Gluck); Adagio élégiaque (Wieniavsky); Selection from Die toten Augen (d'Albert); Petite Suite (Debussy); L'Enfant prodigue (Debussy). **5.40,** Botany Lesson for Children. **6.10,** Talk for Young Amateur Photographers. **6.40,** Talk. **7.10,** Garden Talk. **7.40,** Variety Music on Gramophone Records. **8.10,** Police Notes. **8.25,** Religious Report. **8.40,** Organ Recital by M. E. Bouwmeester, with Songs by the N.C.R.V. Women's Choir. **9.40,** Religious Address. **10.10,** Concert by the Haarlem Orchestral Society, conducted by Frits Schurman. Soloist: Maartje Offers (Contralto). Chorals from the St. Matthew Passion (Bach); (a) Herzliebster Jesu was hast du verbrochen, (b) Ich bin's, ich sollte büssen Concerto grosso (Vivaldi); Herzlich lieb hab' ich dir, o Herr (Schutz); Sinfonia (Bach); Aria from the Suite in D (Bach); Contralto Solo, Meine Seele ist stille zu Gott (Becker); Overture, The Messiah (Händel); Arioso for Contralto, Dank sei dir Herr (Händel); Chorals from the St. Matthew Passion (Bach): (a) Was mein Gott will das gescheh' allzeit, (b) Wenn ich einmal soll scheiden. In the interval at **10.40,** News. **11.25,** Epilogue. **12.10 a.m. (Saturday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**8.20 p.m.,** Radio Concert. **9.0,** Weather, Racing Results and News. **9.15,** Radio Concert. **9.45,** Dance Music from the Palais de la Méditerranée. **12 Midnight to 1.0 a.m. (Saturday),** Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight,** I.B.C. Variety Hour. **12.57 a.m.,** I.B.C. Goodnight Melody. **1.0 a.m.** (approx), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE. See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**9.5 a.m.,** Evangelical Service and Sacred Music, relayed from **Münster. 10.0 to 11.0,** Interval. **11.0,** Reading. **11.25,** Masters of their Craft—Gramophone Records. **12 Noon,** Poems by Ruth Schaumann, with Old Songs. **12.35 p.m.,** Talk: Popular Legends. **1.0,** Concert by the Kunkel Quartet and Helene Guermanova (Contralto): String Quartet, Op. 3, No. 5 (Haydn); Vier ernste Gesänge (Brahms); String Quartet in F, Op. 59 (Beethoven). **2.30,** Talk: Sailing and Aquatic Sports. **2.55,** Talk: A Crisis in History of Art. **3.20,** Two Legends for Young People. **4.0,** Brahms Concert; Selma Lindenberg (Soprano) and Hans Otto Schmidt (Pianoforte); Introductory Talk; Variations on an Original Theme, Op. 21; Songs: (a) Ich schleich' umher betrübt, Op. 32, (b) Der Strom, der neben mir verrauschte, Op. 32, (c) Über die Heide, Op. 86, (d) Meine Lieder, Op. 106, (e) Ein Wanderer, Op. 106; Three Intermezzos, Op. 76. **4.40,** Concert, conducted by Eysoldt. **6.5,** Talk: Industries in Neroth in the Eifel District. **6.30,** Legend and History in the Rhine District and Westphalia, St. Gerson. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 10.5,** News and Sports Notes.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **DRESDEN, 941 kc/s, 319 metres.—10.30 a.m.,** The Passion and Death of Jesus Christ, according to the Visions of Katharina Emmerich (Clemens Brentano), arranged by H. P. Schmiedel, with Music by Hermann Ambrosius. **12 Noon,** Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer: Eine Kleine Trauermusik, for Nine Wind Instruments (Schubert); Good Friday Magic from Parsifal (Wagner); Prelude and Romance from the Suite for Thirteen Wind Instruments (Richard Strauss); Tone Poem, Redemption (Theodor Blumer); Der geigende Eremit (Max Reger); Die Toteninsel (Max Reger); Adagio and Finale from the Symphony in C Minor (Kaun); Prelude to Hannele, Op. 15 (Krehl); Andante from the Suite for Strings, Op. 8 (Stöhr). **2.0,** Weather and Time. **2.10,** Talk: Easter Customs in Central Germany. **2.30,** Serenade for Strings, Op. 21 (Hans Kleemann), by the Bohnhardt Quartet. **3.40,** Concert by the Station Orchestra, conducted by Hilmar Weber: Overture, Orpheus and Eurydice (Gluck); Symphony in B Flat (J. C. Bach); Sollicitudo from the Florilegium (Muffat); Serenade and Adagio religioso from the Kleine Abendmusik (Grabner); Concert Suite from Idomeneo (Mozart). **5.10,** A Literary Sequence from the Works of Böhme, Eichendorff, Fechner, Fenelttersleben, Goethe, Greif, Jean Paul, and Others. **6.0,** The St. Matthew Passion (Bach), relayed from the Kreuzkirche, Dresden. **8.45,** Bells in History, Legend and Popular Belief—Literary Programme. **10.5,** News Bulletin and Close Down.

LINZ. See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**5.30 p.m.,** Choral Concert. **7.0,** Parsifal Opera (Wagner), relayed from the Royal Opera House. **10.0,** Time and News Bulletin.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m. to 1.0 a.m. (Saturday),** Programme in Commemoration of the Founding of the Spanish Republic. Details to be Announced. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**12 Noon to 4.0 p.m.,** The Seven Words from the Cross, relayed from the Church of San José.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**7.0 p.m.,** See **Prague. 7.10,** Talk on Steel Constructions. **7.25** till Close Down, See **Prague. 10.15** (approx.), Close Down.

MOSCOW

TRADES UNION, 230.1 kc/s, 1,304 metres; 100 kW.—**3.30 p.m.,** Agricultural Talk. **5.30,** Popular Concert for Workers. **6.30,** Concert of Schumann and Liszt Chamber Music. **9.0,** Weekly Review and the Letter Box in English.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres,** and **Nürnberg, 1,256 kc/s, 239 metres.—10.0 a.m.,** Protestant Service. **5.0,** Sacred Concert for Good Friday by the Munich Cathedral Choir; Introductory Talk; Sacred Dialogue on Sixteenth Century Text (Becker); Tristis est anima mea, for Five-Part Choir (Orlando di Lasso); Passion Music, Part III (Hobrecht); Six-Part Choir; Recordare (Orlando di Lasso). Tenebrae factae sunt (Haydn); Four-Part Male Voice Choir: Crux fidelis (King John of Portugal); Two Pieces (Jos. Haas): (a) Zerschlagen bin ich, (b) Gott ist die Liebe. **10.20,** Time, Weather, News, Sports Notes, and Traffic Report.

NAPLES. See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.—10.55 a.m.,** Chimes. **11.0,** Divine Service, relayed from the Prestenes kirke. **5.0 p.m.,** Concert by Mlle. Käte Lövseth (Soprano), Eva Wold (Contralto), and M. Melsom (Cello). **6.0,** Divine Service, relayed from the Fagerborg Church. **7.15,** Weather Forecast and News Bulletin. **7.30,** Talk on Music. **8.0,** Time Signal. **8.1,** Trio in E Flat, Op. 40, for Pianoforte, Violin, and Horn (Brahms), followed by Sacred Songs by Morten Vatn. **9.15,** Reading. **9.40,** Weather and News, followed by Topical Talk. **10.0** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Popolavoro Announcements, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. **8.20,** Variety Music on Gramophone Records. In the Interval at **8.30,** Time and Announcements. **8.45,** Concert of Sacred Music. In the Intervals, Talk: Religion in Art and Miscellaneous Announcements. **10.55,** News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**6.15 p.m.,** Talk on the Theatre. **7.0,** Le Journal Parlé. **8.20,** Weather Forecast. **8.30,** Noah's Ark—Programme of Poems and Songs. **9.0,** Concert, conducted by Pierre Monteux, from the Salle Pleyel; Soloists: M. Francescatti (Violin) and Florent Schmitt (Pianoforte). Part I.—Suite in D (Bach); Concerto in G for Violin and Orchestra (Mozart); Overture, L'Enfance du Christ (Berlioz); Sacred Piece (Arensky). Part II.—Symphonie concertante for Pianoforte and Orchestra (Florent Schmitt), the Composer at the Pianoforte; March from Tannhäuser (Wagner). **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Sponsored Talk. **7.10,** Gramophone Concert of Light Music. **8.0,** Talk on Music. **8.15,** Interval. **8.30,** Concert of Sacred Music by the Station Symphony Orchestra. **10.30,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Gramophone Records: Larghetto (Weber-Kreisler); Selection from Le Déluge (Saint-Saëns); Prayer (Hasselmans); Largo (Handel). **8.0,** Press Review and Weather. **12 Noon,** Jewish Address. **12.30 p.m.,** Gramophone Concert: Symphonic Poem, Death and Transfiguration (R. Strauss); Andante pastorale (Taffanel); Three Arias from the St. John Passio (Bach); Symphony

with Organ (Saint-Saëns); Good Friday Magic from Parsifal (Wagner). In the intervals at 1.0, Exchange, News and Weather, and at 1.30, Exchange. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.30, Review of New Books. 6.50, Review. 7.0, Gramophone Concert: Prelude to Lohengrin (Wagner); Chorus from Cavalleria rusticana (Mascagni); Berceuse (Fauré); La Procession nocturne (Rabaud); Chère nuit (Bachelet); Agnus Dei (Bizet); Fantasia in G Minor (Bach); The Pilgrims' Chorus from Tannhäuser (Wagner). 8.0, Reading. 8.30, News, Weather and Sports Notes. 8.40, Gastronomic Talk. 8.45, Sacred Music on Gramophone Records. 9.0, Concert by the Lamoureux Concert Association, relayed from the Gaveau Hall. In an interval at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **WSXK** on **48.86 metres** and **25.27 metres.**—5.0 to 6.0 p.m., Mary Magdalene by Maeterlinck, from **New York.** 10.0, Talk by Dr. Emlyn Jones. 10.10, Business News. 10.15, S.A.I. Musicale—Carnegie Tech Chapter. 10.30, Weather Report. 10.32, Market Reports. 10.45, Johnny Muskrat. 10.50, David Lawrence Dispatch. 10.58, Programme Announcements. 11.0, Musikingum College Music Clubs. 11.15, Dick Daring. 11.30, The Singing Lady, from **New York.** 11.45, Little Orphan Annie. 12 **Midnight,** Our Daily Food, by George Rector and Judge Gordon, from **New York.** 12.15 a.m. **(Saturday),** Time Signal. 12.16, Weather Report. 12.17, Teaberry Sport Review. 12.22, Press News Reeler. 12.29, Temperature Report. 12.30, KDKA Orchestra. 12.45, To-day's News, by Lowell Thomas, from **New York.** 1.0, Pepsodent Amos 'n' Andy, from **New York.** 1.15, Adventures of Aunt Lulu—KDKA Players. 1.30 to 5.0, **New York** Relay. 1.30, Five Star Theatre—Charlie Chan. 2.0, Nestle's Programme. 2.30, Time Signal and Adventures in Health. 2.45, Howard Thurston, the Magician. 3.0, The First Nighter. 3.30, Armour Programme. 4.0, Requiem (Verdi). 5.0, Time Signal. 5.1, Teaberry Sport Review. 5.11, Temperature Report. 5.12, Weather Report. 5.13, KDKA Artist Bulletin. 5.15, Press Last-minute News Flashes. 5.20, Smith Ballew and his Orchestra. 5.58, KDKA Artist Bulletin. 6.0, Cotton Club Orchestra, from **New York.** 6.30, Time Signal and Good-night.

PORSGRUND—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW. 4.30 p.m., The Seven Words from the Cross (Haydn), by the Ondricek Quartet. 6.0, German Transmission: News and Talk; Easter in Creative Art, followed by Topical News. 7.0, Chimes. 7.1, News. 7.10, Talk by Dr. Alice Masaryk. 7.25, Concert of Easter Music by the Lukes Choir and a Viola da Gamba Orchestra. Soloists: A. Provaznik (Organ) and O. Kredba (Harpsichord). 8.10, The Lights of Jerusalem—Three Scenes, from the Time of the Emperor Tiberius (Schaumann). 8.45, Violin Recital by Zdenek Kolarsky: Ballad Op. 92 for Violin and Pianoforte (Foerster); Sonata in B Flat for Violin and Pianoforte Op. 69 (Dusik). 9.0, Time Signal. 9.15, Act I of Carmen—Opera (Bizet) on Gramophone Records. 10.0, Time Signal. 10.1, News Bulletin. 10.15 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **LAUSANNE, 442 kc/s, 680 metres;** and **GENEVA, 395 kc/s, 760 metres.**—6.0 p.m. (from **Geneva**), Programme for Children. 6.15 (from **Geneva**), Talk. 6.30 (from **Geneva**), Report of the International Labour Bureau. 7.0 (from **Lausanne**), Weather and News. 7.30 (from **Geneva**), Talk. 8.0 (from **Geneva**), Talk. 8.30, (from **Geneva**). The St. Matthew Passion—Oratorio (Schütz) for Soloists, Choir, Orchestra, and Organ. 10.0, News and Weather. 10.15 (approx.), Close Down.

RJUKAN.—See **Oslo.**

REYKJAVIK

250 kc/s, 1,200 metres; 21 kW. 12.40 p.m., Weather Report. 1.0, Divine Service.

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.**—1.0 p.m., Time and Announcements. 1.2 to 2.15, Orchestral Concert. In the interval from 1.30 to 1.45, Giornale Radio and Exchange. 4.45, Children's Radio Review. 5.10, Announcements. 5.15, Exchange, Report of the Royal Geographical Society, and Giornale Radio. 5.30, Chamber Music from the Royal Academy of Saint Cecilia. 7.0 **(Naples),** Shipping and Sports Notes. 7.10, Agricultural and Dopolavoro Notes. 7.20, Giornale Radio and Gramophone Records of Light Music. 8.0, Time and Announcements. 8.5, Report of the International Institute of Agriculture (in Italian, French, English, German, and Spanish). 8.30, Sports Notes and Tourist Report. 8.45, The Resurrection of Christ—Oratorio in Two Parts (Perosi) for Soloists, Choir, and Orchestra. 10.55, News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres,** and by **W2XAD** on **19.56 metres.**—8.30 p.m. to 1.0 a.m. **(Saturday), New York** Relay. 8.30, Muted Strings. 8.45, Three Shades of Blue—Male Trio. 9.0, Sonata Recital. 9.15, Famous Loves. 1.0, New Kenmore Orchestra. 1.15, Musical Programme. 1.30, Frank and Gene (Songs). 1.45, The Goldbergs—Comedy Sketch, from **New York.** 2.0, Cities Service Concert, from **New York.** 2.30, WGY Farm Forum. 3.0, Best Foods Musical Store, from **New York.** 3.30, Pond's Programme, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **BASLE, 1,229 kc/s, 244.1 metres;** and **BERNE, 1,220 kc/s, 245.9 metres.**—10.0 a.m. (from **Berne**), Protestant Address. 10.40 (from **Berne**), Organ Recital on Gramophone Records. 11.0 (from **Berne**), Sacred Concert: Cantata for Mixed Choir, Soloists, Strings, and Organ: Seele, geh nach Golgatha (Nagler); Cantata for Contralto, Tenor, Choir, Violin, Oboe, and Organ; O Haupt voll Blut und Wunden (Reger); Passionslied for Soloists, Choir, Strings, and Organ (Arnold Mendelssohn); The Seven Words on the Cross for Soloist, Choir, Organ, and Orchestra (Schütz). 12.28 p.m., Time and Weather. 12.30, News. 12.40, Orchestral Concert. 2.0 to 4.0, No Transmission. 4.0 (from **Berne**), Light Music on Gramophone Records. 5.0 (from **Berne**). Easter—Play in Three Acts (Strindberg). 7.0, Time, Weather, and Sports Results. 7.10 (from **Zürich**), Orchestral Concert. 7.45 (from **Berne**), Reading: The Son of a Servant (Strindberg). 8.15 (from **Berne**), Good Friday Concert, relayed from the Cathedral, **Berne.** 9.20 (approx.) (from **Berne**), An Excursion with the Microphone. 9.30, Weather and News. 9.40 (from **Zürich**), Orchestral Concert. 10.15 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—11.0 a.m., Mass from Uppsala Cathedral. 12.45 p.m., Weather and Ice Report. 2.0, Orchestral Concert: Suite (Alfven); Selection from The Seven Words from the Cross, for String Quartet (Haydn); Evensong (Berg); Angelus (de Micheli); Serenade (Fucik); The Sacred Hour (Ketelbey); Caro mio ben (Giordano); March from Athalie (Mendelssohn). 3.0, Organ Recital by Gunnar Marcusson, relayed from **Orebro, 1,265 kc/s, 237.2 metres.** 3.30, Light Music on Gramophone Records. 4.15, Programme for Children. 5.5, Talk. 5.30, Chopin Music on Gramophone Records. 6.0, Evensong, relayed from **Hudiksvall, 1,327 kc/s, 226 metres.** 7.15, Weather and News. 7.30, Part I of The St. Matthew Passion (Bach), relayed from the Engelbrekt Church. 9.10, Reading. 9.45, Weather and News. 10.0, Soloist Programme. 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—10.0 a.m., Protestant Service in German, relayed from St. William's Church. 11.0, Light Music on Gramophone Records. 11.15, Catholic Service in German. 12.15 p.m., Handel Music on Gramophone Records. 12.45, News. 1.0, Time. 1.1, Gramophone Concert: Capriccio (Stravinsky); Romance sans paroles (Davidov); A Celtic Lament (Squire); Meditation and Elegy from Thais (Massenet). 2.0 to 4.15, Interval. 4.15, Talk in French: Pacifism in Literature. 4.30, St. John Passion (Bach), relayed from St. William's Church: The Municipal Orchestra, St. William's Choir and Soloists. 7.0, Topical Talk in German. 7.15, Light Music on Gramophone Records. 7.30, Time and News. 7.45, Gramophone Concert: Procession and Nocturne (Franck); Airs from: (a) Samson and Delilah (Saint-Saëns), (b) L'attaque du moulin (Bruneau), (c) Il Trovatore (Verdi), (d) Sigurd (Reyer), (e) Norma (Bellini); Marguerite's Aria from Mephistopheles (Boito); Air from Boris Godunov (Mussorgsky). 8.15, Press Review in German and Lottery Results. 8.30, Symphony Concert, relayed from Paris. Soloist: Florent Schmitt (Pianoforte). Concerto grosso in D (Handel); Overture, The Flight into Egypt (Berlioz); Symphony, with Pianoforte (Florent Schmitt). In the interval, Press Review in French. 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **FREIBURG, 527 kc/s, 570 metres.**—10.25 a.m. (from **Mannheim**), Sacred Concert by the Germania Choir; Soloist, Ellen Pfeil (Soprano): O domine Jesu Christe (Palestrina); Gradual (Grell); Die Allmacht (Schubert-Liszt); In stiller Nacht (Brahms-Hegar); Karfreitag (Hugo Kaun); Heimatgebet (Hugo Kaun). 11.0, Catholic Service with Sacred Music on Gramophone Records; The Choir of Salzburg Cathedral: Lass mich Deine Leiden singen (Haydn); Reading; Salzburg Cathedral Choir: Tenebrae factae sunt (Haydn); Reading; Choir of All Saints', Munich; Populo meus (Vittoria); Address; Salzburg Cathedral Choir: Lament of the Prophet Jeremiah; Paderborn Cathedral Choir: O Haupt voll Blut und Wunden (Bach). 12 **Noon,** Organ Recital relayed from Ulm Minster; Choral Prelude: O Haupt voll Blut und Wunden (Bach); Adagio from the Sonata in B Minor for Violin and Continuo (Bach); Choral Fantasia: O Lamm Gottes (Bach); Largo from the Suite in Old Style for Violin and Organ (Reger); Choral: Valet will ich dir geben (Reger). 12.45 p.m., Good Friday Music on Gramophone Records: Vexilla regis (Bruckner); Wir setzen uns mit Tränen nieder, from the St. Matthew Passion (Bach); Introit from the Requiem (Knüppel); Süsser Trost, mein Jesus (Bach); O Herr, ich bin nicht würdig, from the German Mass (Haydn); Two Arias from the St. Matthew Passion (Bach); Two Arias from The Messiah (Händel); Heilige Namen, allzeit beisammen; Aus tiefer Not (Bach); Ach, bleib mit deiner Gnade; Selig sind die da Leid tragen, from the German Requiem (Brahms). 1.45, Reading from Meister Eckhart: (a) from the Buch der göttlichen Tröstung, (b) Die Geliebte des Herrn Jesus von Nazareth. 2.0, Choral Concert by the Christian Missionary Society. Two Chorals: (a) Ach, mein Herr Jesu (Flemming), (b) Schau hin! Dort in Gethsemane (Nägeli); Paraphrase on Das tat ich für dich; Was tust du für mich? (Gebhardt-Walser); Ich lag in tiefer Todesnacht (Eccard); Aria from The St. John Passion (Bach); Paraphrase on O Lamm Gottes unschuldig (Decius-Walser); Sanctus from the Requiem (Berlioz, arr. Ruh); Sanctus from the German Mass (Schubert). 2.30, Holy Week Programme of Sacred Songs and Readings. 3.15 (from **Mannheim**), String Quartet in F Sharp Minor, Op. 121 (Max Reger). 4.0 (from **Mannheim**), Das Passional (Ruth Schaumann). 4.15, A Trip to Mont Serrat (on Gramophone Records). 4.50 (from **Mannheim**), Reading: The Crucifixion from Die grosse Sünderin (Elisabeth Herbst-Bernhardi). 5.20 (from **Freiburg**), The Seven Words—Oratorio for Soloists, Choir, Orchestra, and Organ (Haydn). 6.0 (from **Karlsruhe**), The Passion—Good Friday Literature and Sacred Music: Contralto Solo, Die bittere Leidenszeit (Bach); Violin Solo, Adagio (Bach); Poem, Zuversicht (Konrad Ferdinand Meyer); Contralto Solo, Mein Jesu, was für Seelenweh (Bach); Violin Solo from the Fifteen Mysteries (Biber); Poem, Gethsemane (A. von Droste-Hülshoff); Contralto Aria with Violin obbligato from the St. Matthew Passion (Bach); Poem, Unterm Kreuz (Woike); Violin Solo from the Fifteen Mysteries (Biber); Poem, O Haupt voll Blut und Wunden (Gerhardt); Contralto Solo, So wünsch ich mir zu guter Letzt (Bach). 7.0, Transmission for all German Stations, relayed from **Berlin (Witzleben).** 8.0, Der Ackermann und der Tod—a Fifteenth Century Dialogue on Death (Johannes von Saaz). 8.30, A German Requiem, Op. 45 (Brahms), for Soloists, Choir, and Orchestra, by the Baden Municipal Orchestra, relayed from **Baden-Baden.** 9.45, Totentanz (Alois Johannes Lippl). 10.30 (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—6.0 p.m., News Bulletin. 6.15, Saxophone Solos: (a) Pavane pour une Infante défunte (Ravel), (b) Serenade (Saint-Saëns), (c) Pour vous les larmes (Chopin); Andante molto (Bizet). 6.30, Opera Music: Selection from: (a) Lakmé (Delibes), (b) Thais (Massenet), (c) Romeo and Juliet (Gounod), (d) The Tales of Hoffmann (Offenbach). 6.45, Petite suite (Debussy) by a Symphony Orchestra. 7.0, Talk: The Causes and Treatment of Sciatica. 7.15, Racing Results, Market Prices and News Bulletin. 7.25, Local News Bulletin. 7.30, Concert of Viennese Music: Valse triste (Sibelius); Melody (Scherzinger); Dornez, bel ange (Pons); In lauschiger Nacht (Ziehrer); Reverie (Toselli); Cradle Song (Jarnefelt). 8.0, Sacred Songs. 8.15, 'Cello Solos: (a) Prelude to Le Deluge (Saint-Saëns), (b) Agnus Dei (Bizet), (c) Le Cygne (Saint-Saëns). 8.30, Symphonie fantastique (Berlioz) by a Symphony Orchestra. 9.0, Vocal and Instrumental Concert: Chanson d'avril (Bizet); Le passeur du printemps (Goublier); Piece (Beethoven); Harp Solo: Contemplation (Renié); Musical Saw: Ton doux sourire; Melody (Noclot); Songs from: (a) Le Jongleur de Notre-Dame (Massenet), (b) Il Trovatore (Verdi), (c) William Tell (Rossini); Träumerei (Schumann); The Angels Serenade (Braga); Chanson triste (Tchaikovsky); Clair de lune from Werther (Massenet). 10.0, Recitations. 10.15, North-African News. 10.30, Concert for Listeners in Morocco: Lake Como (Galos); L'Angélus de la Mer (Goublier); Violin Solo: Chant hindou (Rimsky Korsakov); Prelude (Rachmaninov); Rondo delle orc (Sylviano); Selection from Si j'étais Roi (Adam). 11.0, Sound Film Music. 11.15, Organ Recital. 11.30 to 12 **Midnight,** Programme in English by the I.B.C. 11.30, Concert of Sacred and Classical Music: Souvenirs classiques; How Vain is Man (Handel); Where'er you walk (Handel); Ave Maria (Bach); Ombra mai fu (Handel); Waft her, Angels (Handel); Deeper and deeper (Handel); Classical Selections. 11.57, I.B.C. Goodnight Melody. 12 **Midnight,** News, Weather Forecast and Announcements. 12.5 a.m. **(Saturday),** Operetta Music: Selection from: (a) La Basoche (Messager), (b) The Desert Song (Romberg), (c) La Poupée (Audran). 12.15, Orchestral Music: Concerto in A minor (Bossi); Overture, Zampa (Herold). 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—6.35 p.m. till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—6.35 p.m., Giornale Radio, Agricultural and Dopolavoro Notes. 7.0, Time, and Music on Gramophone Records. 7.20, Giornale Radio. 7.45, Report of the Royal Geographical Society, and Gramophone Records. 8.0, Announcements, Giornale Radio, Weather, and Gramophone Records (contd.). 8.45, Notes on Art. 9.0, Concert of Sacred Music, conducted by Ugo Tansini; Psalm for Baritone and Orchestra (Sandro Fuga); The Resurrection of Christ—Oratorio for Soloists, Choir, and Orchestra (Perosi). Talk in the interval. 11.0, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and **5,969 kc/s, 50.26 metres (Evening);** 10 kW.—11.0 to 11.15 a.m., Good Friday Programme. 8.0 to 8.15 p.m., Good Friday Programme.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,085 kc/s, 283 metres Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—5.0 p.m., Concert by the Anton Bruckner Orchestra, conducted by Karl Auderieth: Soloist: Aenne Michalsky (Soprano); Overture in G Minor (Bruckner); Suite No. 2 in B Minor (Bach): (a) Overture, (b) Rondo, (c) Sarabande, (d) Bourrée No. 1, (e) Bourrée No. 2, (f) Polonaise, (g) Minuet, (h) Badinerie; I know that my Redeemer Liveth, from The Messiah (Händel); Jerusalem, Jerusalem, from St. Paul (Mendelssohn); Good Friday Magic from Parsifal (Wagner); Songs (Hugo Wolf): (a) Karwoche, (b) Schlafendes Jesukind, (c) Gebet; Symphonic Poem, Op. 24, Death and Transfiguration (Richard Strauss). 6.30, Good Friday Address. 7.0, Time, Weather and Programme Announcements. 7.10, Passion—Play (Georg Rendl). 8.30, Requiem (Mozart), The Hofmusikkapelle, conducted by Carl Luze: Soloists: Carl Raab, Josef Panzer, Richard Tomek (Tenor) Rudolf Zeindler (Bass), and Leopold Schatzinger (Trombone). 9.30, News and Weather. 9.45, Traffic Report.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.57 a.m., Time Signal and Fanfare from St. Mary's Church, Cracow. 12.5 p.m., Programme Announcements. 12.10, Light Music on Gramophone Records. 1.20, Weather Forecast. 1.25 to 3.25, Interval. 3.25, Aviation Report and Anti-gas Drill. 3.30, Talk on Maritime and Colonial Affairs. 3.35, Talk. 3.50, Light Music on Gramophone Records. 4.45, Review of Periodicals. 5.0, Musical Programme. In the interval, Announcements. 5.55, Programme Announcements. 6.0, Musical Programme. 7.0, Miscellaneous Items. 7.20, Polish and Foreign Agricultural Report, relayed from **Wilno (533 kc/s, 563 metres).** 7.30, Talk: Good Friday Ceremonies. 7.45, Radio Journal. 8.0, Extracts from Parsifal—Opera (Wagner). 9.30, Sports Notes. 9.35, Radio Journal. 9.40, Sacred Concert, relayed from the Church of the Holy Cross. 10.55, Aviation Weather Report and Police Notes.

WILNO

533 kc/s, 563 metres; 16 kW.—5.55 p.m., Programme Announcements. 6.0, See **Warsaw.** 6.40, Talk for Poles in Lithuania. 6.55, Miscellaneous Announcements. 7.0, Talk. 7.15, Miscellaneous Items. 7.20, Agricultural Press Review. 7.30 till Close Down, See **Warsaw.** 11.0 (approx.), Close Down.

ZAGREB

977 kc/s, 307 metres; 0.75 kW.—7.20 p.m., Introductory Talk to the following Transmission. 7.30, Relay of Acts Two and Three of Parsifal—Opera (Wagner). 10.30 (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

SATURDAY

APRIL THE FIFTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL "Motor Racing," by S. C. H. Davis. Music hall vaudeville concert. Instrumental concert. "Fifty years of Tunes."

LONDON REGIONAL A Mendelssohn orchestral programme.

MIDLAND REGIONAL "Etc., Etc., One inconsequential thing after another," feature programme.

NORTH REGIONAL "Hiker's Holiday," orchestral and choral programme.

WEST REGIONAL Orchestral concert from the National Museum of Wales.

SCOTTISH REGIONAL Concert by some winners at the Glasgow Musical Festival.

BELFAST An Irish choral and instrumental programme.

ABROAD

BERLIN (Witzleben) 10.30 p.m. Act 3 of "Parsifal" (Wagner), from Unter den Linden.

BORDEAUX LAFAYETTE 5 p.m. Pasdeloup Symphony concert, from Paris.

HEILSBERG 8 p.m. Concert by the Königsberg Opera House Orchestra.

KONIGSWUSTERHAUSEN 8 p.m. The Passion (Handel), from the Marienkirche.

PALERMO 8.45 p.m. Operetta: "Katja the Dancer" (Gilbert).

STUTTGART 7 p.m. "From Steam Wagon to Motor Coach," a radio sequence in connection with the Carl Benz Memorial (K. Kostlin) (relayed by other German stations). 8 p.m. Orlando di Lasso concert on the fourth centenary of the composer's birth.

ALGIERS

824 kc/s, 364 metres; 13 kW.—**8.10 p.m.,** Shipping Notes. **8.15,** Agricultural Report and Weather Forecast. **8.20,** Music by an Argentine Orchestra. **8.35,** Jazz Music. **8.55,** News Bulletin. **9.0,** Time Signal. **9.2,** Violin Recital by Fritz Kreisler. **10.0,** Concert of Light Music. **10.30,** Dance Music, relayed from the Hotel Aletti. **12 Midnight** (approx.), Close Down.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.**—**6.15 p.m.,** Light Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Talk on Gaelic Literature. **7.45,** Gaelic Talk. **8.0,** Concert by the Station Orchestra; Soloist, Mme. Hefferman (Soprano). **9.0,** Variety Items by the Nono Brothers. **9.30,** Pianoforte Recital by Marie Mulcahy. **9.55,** The Station Orchestra. **10.30,** Time Signal, News Bulletin, Weather Report, and Close Down.

BARCELONA

RADIO-BARCELONA, EAJ1, 860 kc/s, 348.8 metres; 8 kW. Transmission at intervals from **7.0 p.m.,** Programme for Children. **8.0,** Request Gramophone Concert. **8.30,** Exchange Quotations, followed by Catalan Lesson. **9.0,** Light Music on Gramophone Records and News Bulletin. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange and Market Prices. **10.5,** Concert by the Station Orchestra: March of the Comedians (Smetana); Waltz, Cloti (Planas); Pavane, Pajaros y flores (Palau); Overture, Paragraph 111 (Suppé). **10.30,** Relay from **Madrid, EAJ7. 12 Midnight** (in an interval), News Bulletin.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**6.0 to 6.30 p.m.,** Popular Music on Gramophone Records. **8.0,** Agricultural Notes, Tourist Report, and Dopolavoro Announcements. **8.20,** Giornale Radio, Sports Notes, and News. **8.30,** Time Signal and Announcements. **9.0,** Concert of Operetta Music. Soloists: Michele Montanari (Tenor) and Clara Demitri (Soprano). Potpourri of Popular Melodies (Dostal); Tenor Solo: Non ti voglio più amare (d'Anzi); Soprano Solo: Io di amori ne ho tre (Mariotti); Hungarian Caprice (Ferraris); Tenor Solo: Sperduti nel blen (Borella); Soprano Solo: John (Mascheroni); Ave Maria (Bettinelli); Tenor Solo: Ah, Whilly (Hajos); Soprano Solo: Se prendiamo un buon caffè (Moleti); Potpourri, From Heidelberg to Barcelona (Borchert); Tenor Solo: Chiacchiere (Gurgo-Marf); Soprano Solo: Legenda azzura (Bixio); Serenatella (Panizzi); Tenor Solo: Gaucho Tango (Hamud); Soprano Solo: Rimpianto (Bonavolonta). Tenor Solo: Uno-due-tre (d'Anzi); Soprano Solo; Suona fanfara mia (Moleti); Selection from The Student Prince (Romberg). In the interval, Notes on Art. **10.30,** Light Music from the Grand Hotel Moderno. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**12 Noon,** Weather for Farmers. **12.2 p.m.,** Scenes from Parsifal (Wagner), on Gramophone Records, followed by Second Weather Report. **12.55 p.m.,** Time Signal. **1.45,** News Bulletin. **2.0,** Gramophone Concert relayed from **Berlin (Witzleben). 3.0,** Handwork for Children. **3.30,** Weather and Exchange Quotations. **3.45,** Readings. **4.0,** Talk: German Easter Customs. **4.30,** Concert from Hamburg. **5.10,** Weekly Review. **6.0,** A Poem. **6.5,** Song Recital by Margarethe Pohland (Soprano); Acis' Aria from Acis und Galathea (Handel); Cleopatra's Aria from Julius Cæsar (Handel); Two Songs from Figaro (Mozart): O mein Leid ist unermessen, from Euryanthe (Weber). **6.30,** Talk and Recitation. **6.55,** Weather for Farmers and Announcements. **7.0,** Transmission for all German Stations, relayed from **Stuttgart. 8.0,** Passion—Oratorio (Handel), relayed from the **Marienkirche. 9.30,** Reading from The Messiah (Klopstock). **10.0,** Weather, News and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Serenade from **Munich. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.0 p.m.,** Orchestral Concert. **5.0,** Radio Report on the Easter Hockey Tournament in Folkestone. **5.15,** Concert (contd.). **6.0,** The Great Silence—a Special Programme for Easter Saturday. **6.25,** Hermann Simon Concert. Soloists: Lula Mysz-Gmeiner (Songs), Hans Frenz (flute), Leonhard Kohl (Clarinet) and Karl Köhnke (Cello). **6.50,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Stuttgart. 8.0,** Orchestral Concert Relay. **10.0,** Weather, News and Sports Notes. **10.25,** Introduction to the following Transmission. **10.30,** Act Three of Parsifal Opera (Wagner), relayed from the Opera House, Unter den Linden. **11.40,** Reading of the Easter Scene from Faust (Part I).

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW. **4.10 p.m.,** Concert of Waltzes by Lanner. The Station Orchestra, conducted by J. Odchazel. **5.10,** See **Prague. 5.20,** An Easter Story. **5.35,** Light Music on Gramophone Records. **6.5,** See **Prague. 6.25,** Popular Music on Gramophone Records. **6.40,** Talk for Housewives. **6.55,** Talk on Housing. **7.0,** See **Prague. 8.0,** See **Moravská-Ostrava. 10.0,** See **Prague. 10.15,** Variety Concert by the Station Orchestra, conducted by F. Dyk; Soloists, M. Horsky (Songs) and Rudolf Ilel (Violin). **11.30** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 1.5 kW; and **Gleiwitz, 1,184 kc/s, 253 metres.**—**1.5 p.m.,** Weather for Farmers. **1.10,** Gramophone Concert of Variety Music. **1.45,** Time, Weather, News and Exchange. **2.5,** Gramophone Concert (contd.). **2.45,** Programme, arranged by the Post Office, with Gramophone Records. **3.10,** Market Prices. **3.40,** Talk on Films. **4.0,** Talk on Silesian Universities. **4.30,** Siegfried Kuhn Concert on the Composer's Fortieth Birthday: Kate Mann (Soprano), Fritz Binnowski (Cello), and Curt Marquart (Pianoforte). Songs: (a) Studentenfahr, (b) Kurze Fahrt, (c) Nacht, (d) Minnelied; Sonata in B Minor for 'Cello and Pianoforte; Songs: (a) Musikantengrass, (b) In meines Vaters Garten, (c) Abendhimmel, (d) Sänberliches Mägdelein; Pianoforte Variations on an Old German Love Song, Drei Laub auf einer Linden. **5.20,** Talk: Blinel Huber, the only Sculptor of Steel. **5.40,** Review of Books. **6.0,** Recital of Sacred Music from St. Elizabeth's Church. Schalmmert ein, ihr matten Augen (Bach); Song, Bist du bei mir (Bach); Psalm, Da Jesus an dem Kreuze stund (Scheidt); Three Songs (Bach): (a) Mein Jesu, was für Seelenweh, (b) So gibst du nun, mein Jesu, gute Nacht, (c) Jesus, unser Trost und Leben; Passacaglia and Fugue in C Minor (Bach). **6.40,** Topical Programme. **7.0,** Transmission for all German Stations, relayed from **Witzleben. 8.0,** Weather for Farmers. **8.2** (approx.), Concert from Heilsberg. **8.45,** See **Leipzig. 10.0,** Time, Weather, News, Sports Notes and Programme Announcements. **10.30,** Heroes in Music—Concert on Gramophone Records: Alfred Sittard (Organ); March from Hercules (Händel); The Berlin Philharmonic Choir conducted by Siegfried Oehs: Aria from Judas Maccabaeus (Händel); The London Symphony Orchestra, conducted by Albert Coates: Overture, Prometheus (Beethoven); The Boston Symphony Orchestra, conducted by Serge Koussevitsky; Third Movement from the Sixth Symphony (Tchaikovsky); The Cuban Cossack Choir: Midnight Review (Glinka); The Berlin State Opera House Choir, directed by Max von Schillings: The Entry of the Gods into Valhalla, from the Rhinegold (Wagner); The Berlin Philharmonic Orchestra, conducted by Selmar Meyrowitz Kaisermarsch (Wagner). **11.30** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**5.50 p.m.,** Talk in Esperanto. **6.0,** Theatre and Film Notes. **6.15,** See **Prague. 6.25,** German Transmission: News, Sports Notes and Talk. **7.0,** See **Prague. 7.10,** Joseph Suk Pianoforte Recital by Marie Dvoraková. **7.25,** See **Prague. 8.0,** See **Moravská-Ostrava. 10.0,** See **Prague. 10.15,** See **Bratislava. 11.30** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12.0 Noon,** Concert relayed from the Grand Hotel, Antwerp. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert of Light Music on Gramophone Records. **4.45,** Talk arranged by the Society for the Prevention of Cruelty to Animals. **5.0,** Concert by the Symphony Orchestra, conducted by J. Kumps: The Nursery Suite (Inghelbrecht); Arabesque (Absil); Dance (Absil); Selection from Les Erynnies (Massenet). **6.0,** Talk. **6.15,** Concerto for Violin and Orchestra (Tchaikovsky) on Gramophone Records. **6.45,** Extra—Lucide Sketch (Desplas). **7.0,** Gramophone Records: Suite funambulesque (Messager); Overture, Les Cloches de Corneville (Planquette). **7.15,** Talk. **7.30,** Review of International Events. **8.0,** Concert by the Symphony Orchestra, conducted by J. Kumps; Soloist, Octave Dua (Songs): Overture, William Tell (Rossini); Lament from Tosca (Puccini); The Flight of the Bumble Bee (Rimsky-Korsakov); Dance of the Tumblers (Rimsky-Korsakov); Song from Susanne (Paladilhe); Anitra's Dance from the Peer Gynt Suite (Grieg). **8.30,** Le Lothier de Crémone—Sketch in One Act (François Coppée). **9.5,** Concert (contd.): Overture, The Mastersingers (Wagner); Songs: (a) Rondel de Fadieu (de Lara), (b) Il neige (Bemberg), (c) Le petit Nazire (Missa). **10.0,** Le Journal Parlé. **10.10,** Concert by the Max Alexys Orchestra, relayed from the Ancienne Belgique.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**12 Noon,** Gramophone Concert: Radetzky March (Joh. Strauss); Idyll, Clair matin (Jeanjean); Hylda (Reymand); Selection from Im Reiche des Indra (Lincke); Marlborough (Paradis); March from Sigurd Jorsalfar (Grieg); Romance, Op. 26 (Svendsen); Rustle of Spring (Sinding); Song, Ich liebe dich (Grieg); March (Sinding); Symphonic Dances (Grieg). **1.0 p.m.,** Journal Parlé. **1.10,** Popular Concert relayed from the Grand Hotel, Antwerp; Conductor, A. Felleman: Selection from Der Freischutz (Weber); Interlude; Songs by Edmond Tolkowsky; Flemish Lullaby (Crabbé); La Canciön del Olvido (Serrano); Humoresque (Dvorák); Interlude; Songs by Mme. Blanche Lambert-Hendrick; Doornroosju (Mortelmans); Air from Figaro (Mozart); Ballet Suite from Milenka (Blockx). **3.0,** The St. Matthew Passion (Bach), by the Cecilia Choir, Orchestra and Soloists. **5.0,** Concert by the Radio Orchestra, conducted by C. Walpot: Commemorative March (Gilson); Waltz from Gipsy Love (Lehár); Overture, The Merry Wives of Windsor (Nicolai); Air from Kinderszenen (Schumann); Selection from The Tales of Hoffmann (Offenbach); Aubade (Ambrosio); La voix des cloches (Luigini); Oriental Suite (Popy). **6.0,** Gramophone Music: Circassian Song (arr. Tcherepnin); Overture, Tannhäuser (Wagner). **6.15,** Talk: William of Orange. **6.30,** Gramophone Concert. A Weekend in the Land of Cockaigne (Armandola); Un poco triste (Synk); Fleurs de lys (Steffens); Selection from The Merry Peasant (Paul); Orientale (Cui); In the Shadows (Finck); Selection from The Gipsy Baron (Joh. Strauss); Airs d'Auvergne (Debrens). **7.15,** Talk: Belgium and the Crisis. **7.30,** Film Review. **8.0,** Concert by the Radio Orchestra, conducted by Charles Walpot: Egyptian March (Joh. Strauss); Overture, The Nuremberg Doll (Adam); Waltz, Les sirènes (Waldteufel); Chant d'amour (Candaal); Selection from Madame Butterfly (Puccini); Burlesque (Poot). **8.45,** Recitation to Music. **9.0,** Orchestral Concert (contd.): Millöcker Potpourri (Morena); Bells across the Meadow (Ketelbey); Selection from The Merry Widow (Lehár); Intermezzo, In the Shadows (Finck); Spanish Suite, La Feria (Lacôme). **10.0,** Journal Parlé. **10.10,** Dance Music relayed from the Saint-Sauveur Palais de Danse. **11.30,** Dance Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Radio Journal. **9.30,** Divine Service.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW. Also relayed on **840 metres** from **6.15 to 12 Midnight.**—**5.0 p.m.,** Talk. **5.30,** Pianoforte Recital by Eduard Kilenyi. **6.45,** Concert by the Station Quintet. Pater noster (Mailath); Hungarian Dance (Rossavolgyi); In the Monastery (Borodin); Andante from the String Trio (Dohnanyi); In the Church (Clement); Pastorale (Buchner); Chanson triste (Molnar). **7.45,** Talk. **8.15,** Concert in memory of Count Apponyi. The Opera House Orchestra, conducted by Ernst Dohnanyi. Soloist: Zoltan Zavodszky. **9.35,** News. **9.50** (approx.), Concert by the Bela Racz Cigány Orchestra, relayed from the Café Baross. **11.0,** Concert by the Renso Horváth Cigány Orchestra, relayed from the Café Emke. **12 Midnight,** Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres, 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time and Chimes from the Town Hall. **12.5 p.m.,** String Ensemble Concert, relayed from the Bellevue Strandhotel. **2.0 to 2.30,** Interval. **2.30,** Gramophone Concert. **3.0,** Programme for Children. **3.30,** Concert by the Radio Orchestra, conducted by Emil Reesen; Soloist, Poul Knudsen (Songs): Overture, Luln (Kuhlau); Dream Pictures (Lumbye); Morgenstemning from Haken Jarl (J. P. E. Hartmann); Gudernes Triumfmarch from Thrymskviden (J. P. E. Hartmann); First Movement from the Fourth Symphony in B Flat (Gade); Final Gallop from Napoli (Lumbye); Songs: (a) Skon Jomfru'luk dit Vindueop (Weyse), (b) Marsviolerne (Gade), (c) I Vaaren knoppes en Lind saa gron (J. P. E. Hartmann), (d) Aften paa Loggien (Heise), (e) Skin ud du klare Solskin (Lange-Müller), (f) O hvor er jeg glad i Dag (Carl Nielsen); Overture, The Vikings at Helgeland (E. Hartmann); Bridal Waltz from Et Folkesagn (Gade); Overture and Two Airs from Gurre (Horneman); Dance from Wayland the Smith (F. Henriques); Airs (Carl Nielsen). **5.40,** Exchange and Fish Market Prices. **5.50,** Reading. **6.20,** Talk on Films. **6.50,** Weather Forecast. **7.0,** News. **7.15,** Time Signal. **7.20,** Talk: Lord Thomson and the Bankruptcy of Europe. **8.0,** Chimes from the Town Hall. **8.2,** Easter Programme, relayed from the Royal Theatre; Members of the Royal Orchestra, conducted by Johan Hye-Knudsen, a Students' Choir, and Soloists: Prof. Vilhelm Andersen (Readings) and Einar Nortv (Songs): Introductory Talk; Community Singing; Modersmaalet (Rung); De levendes Land, for Speaker, Choir, and Orchestra (Grundtvig-Carl Nielsen); Easter Lilies—Play (Grundtvig), with Music by Carl Nielsen; Community Singing; Dagvisen (Weyse). **9.15,** News. **9.30,** Chopin Pianoforte Recital by Prof. A. Turczinsky: Impromptu in F Flat, Op. 51; Three Mazurkas, Op. 56; Two Waltzes, Op. 64; Nocturne in E Flat, Op. 9; Tarantella, Op. 43. **10.0** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsburg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,327 kc/s, 226 metres; 10 kW.—**5.30 to 7.0 p.m.** Programme in English by the I.B.C. **5.30 p.m.,** Concert of Orchestral and Organ

Music for Tunbridge Wells and Isle of Thanet Listeners: Waltz Medley. Around the Volga (Borchert); Elégie (Massenet); The Skaters' Waltz (Waldteufel); Largo (Handel); Waltz, Tales from the Vienna Woods (Joh. Strauss); In a Monastery Garden (Ketelbey); Bells across the Meadows (Ketelbey); Selection of Haydn Wood's Songs; The Phantom Melody (Ketelbey); Waltz from The Gipsy Princess (Kalman). **6.15,** Concert of Vocal and Orchestral Music for Dover and Folkestone Listeners: Orchestra: We're Friends again (Turk); I'm in the Seventh Heaven (de Sylva); Am I blue? Little Pal (Henderson); Wishing and waiting for Love; Orchestra: The Ragpicker's Party; Just plain Folk (Gilbert); Sleep, Baby, sleep (Tucker); I'll never ask for more (Ahlert); Hello, Sunshine! (Murray); Orchestra: Baby's Birthday Party (Ronell). **11.0** till Close Down, Programme in English by the I.B.C. **11.0,** Club Concert for Fraserburg Listeners: Wee Macgregor Patrol (Amers); Song, The Rebels are out; Riders of the Flag; Song of the Flame (Gershwin); Waldmere March; Songs: (a) The Deil's awa' (Traditional), (b) The Piper o' Dundee (Traditional); Selection, Old Timers; Song, Auld Scotch Pals of Mine (Maclean); Jolly Good Fellows; Songs: (a) Johnnie Cope (Traditional), (b) Kirkeonnel Lea (Traditional); Golden Jubilee March. **12 Midnight,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: General Mulcahy March (Brase); Pianoforte Solo: Selection from The Cat and the Fiddle (Kern); Song, The Wheeltapper's Soug (Charles); Accordion Duet: Irish Jigs; Songs: (a) I travel the Road (Parsons), (b) The Driver of the 8.15 (Longstaffe); Selection from The Gondoliers (Sullivan). **12.30 a.m. (Sunday),** Songs: Airman, Airman (Hargreaves); The Girl Friend of a Boy Friend of mine (Donaldson); Singin' in the Bathtub (Magidson); Orchestra: Happy Interludes; I still believe in you (Akst); I took Jane for a walk in the Rain (Hargreaves); I've never seen a Smile like yours (Johnson). **1.0,** Banjo Solos: March, Rugby Parade (Oakley); A Desert Breeze (Earle); Tattoo March (Earnshaw); A Banjo Vamp (Grimshaw); Heather Bloom; The Wedding of the painted Doll (Brown); Riverside (Kirby); Medley of Popular Airs. **1.30,** Songs: Crying for the Carolines (Warren); Gipsy Melody (Nicholls); Wasn't it nice? (Seymour); Orchestra: Musical Switch; My Heart is where the Mohawk flows (Carson); Wandering Days (Strickland); When you wore a Gingham Gown (Gilbert). **2.0,** Dance Music by the Decolians; Till Tomorrow; My Romance; Pu-leeze Mr. Hemmingway; Pal of my Dreams; Let's all dance the Polka; Three's a Crowd; Marching along together; Sweethearts forever; You're my Everything; I guess I'll have to change my Plan; Ooh! that Kiss; I'm forgetting myself; Let's put out the Lights; I wonder how the old Folks are To-night. **2.57,** I.B.C. Good-night Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE. See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—3.30 p.m.,** See **Stuttgart. 4.25,** Economic Notes. **4.30,** Gramophone Concert of Classical Music. **5.50,** Economic Notes. **6.0,** Talk for Workers. **6.25,** Discussion between Dr. Werner Kulz and Dr. Clauss: New Methods in Psychology. **6.50,** Time, Programme Announcements, Weather and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Stuttgart. 8.0 to 10.0,** See **Stuttgart. 10.0,** The German Almanac. **10.15,** Time, News, Weather and Sports Notes. **10.45,** See **Munich. 12 Midnight** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG. See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.—3.40 p.m.,** Shipping Notes. **4.0,** Agricultural Talk. **4.30,** Orchestral Concert, conducted by José Eibenschutz: Overture, Die Abreise (d'Albert); Theme and Variations from the String Quartet in G (Haydn); Norwegian Rhapsody, No. 1 (Halvorsen); Pizzicato Polka (Joh. Strauss). **5.10,** Easter and Whitsun in Sacred Music—Talk with Musical Illustrations. **5.55,** An Easter Variety Concert by a Schoolboys' Choir and Month Organ Society. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Stuttgart. 8.0,** See **Munich. 10.0,** Time, Weather, Announcements, Sports Notes, and Police Report. **10.20,** Talk on Air Defence. **10.30,** Concert by the Radio Chamber Orchestra, conducted by Gerhard Maasz; Soloist, Gerhard Gregor (Organ); March from The Golden Cross (Brüll); Overture, Friedensfeier (Reinecke); Waltz from As You Like It (Zilcher); Swedish Dance (Aulin); Selection from Hanneles Himmelfahrt (Graener); Slav Dance No. 12 (Dvorak); Entr'acte from Notre Dame (Schmidt); Waltz, Air and Finale from The Merchant of Venice (Sullivan); Intermezzo from The Tempest (Weingartner); Suite in Old Style (Halvorsen); Organ Solo: Improvisation on Nearer my God to Thee (Karg Elert).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.—12.30 p.m.,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Caucasian Suite, Ibera (Ippolitov-Ivanov); Pesther-Walzer (Lanner); Selection from La Bohème (Puccini); Madrid (de Micheli); Alle Hampelmänner tanzen (Lindemann); Suite, A Day in Venice (Armandola); Selection from A Waltz Dream (O. Straus); March, Der eiserne Grenadier (Richter). **1.5,** Popular Music on Gramophone Records. In the interval at **1.20,** News. **2.30,** Programme arranged by the Post Office with Gramophone Records. **3.0,** Agricultural Prices and Exchange Rates. **3.30,** Hans und der Osterhase—Radio Play for Young People (Josef Steck). **4.0,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Prayer, and Temple Dance from Olaf Trygvson (Grieg); Selection from André Chenier (Giordano); Album Leaf (Micheli); Spanish Serenade (Micheli); Potpourri, Dur und Moll (Schreiner); Mignonette (Monmert); Melody (de Taye); Schumann Fantasia (Schreiner); Overture, A Masked Ball (Auber). In the interval at **5.0,** Radio Report on the Hockey Festival at Folkestone. **6.0,** Programme Announcements. **6.10,** Programme Announcements in Esperanto. **6.15,** Agricultural Prices. **6.25,** Talk: Thoughts on the State. **6.50,** Weather Report. **7.0,** Transmission for all German Stations. **8.0,** Concert by the Königsberg Opera House Orchestra, conducted by Ludwig Leschetitzky: Overture, Eine feste Burg ist unser Gott (Nicolai); Reigen der seligen Geister (Gluck); Furienanz (Gluck); Angelus for Strings (Liszt); Ave Maria from Othello (Verdi); The Procession to the Minister, from Lohengrin (Wagner). **8.45,** See **Leipzig. 10.0,** Weather, News and Sports Notes. **10.15** (approx.), Concert. **12.30 a.m. (Sunday),** Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW up to **5.40 p.m.**). **12.40 p.m.** till Close Down, Programme of the Workers' Radio Society (V.A.R.A.).—**12.40 p.m.,** Concert by the Small V.A.R.A. Orchestra, conducted by P. Duchant. **2.25,** Accordion and Pianoforte Recital by C. Steyn and J. Vogel. **2.40 to 2.55,** Interval. **2.55,** Light Music on Gramophone Records. **3.25,** Talk. **3.40,** Song Recital by E. Stefansson. **4.10,** Balalaika Concert: Toska po Rodinja (Dagmarov); Melody (Tolstoi); Selection from The Gipsy Princess (Kálmán); Czardas, No. 1 (Michiels); Kamargo (Renbold). **4.40,** Organ Recital by J. Jong: Erinnerungen an Chopin (Fetras); Glow-worm Idyll (Siede); Selection from Ball in Savoy (Abraham); Rêve d'Ambrosio); Als een rots zoo vast (Brockex). **5.10,** Temperance Talk. **5.25,** Popular Music on Gramophone Records. **5.40,** Literary Talk. **6.40,** Concert by a Mixed Choir, conducted by A. Krelage, with an Address by J. A. Krela and Recitations by A. Bouwmeester. **7.40,** Talk. **8.10,** Popular Music on Gramophone Records. **8.25,** Address by A. de Vries. **8.40,** Electoral Address. **9.10,** Concert by De Fierefluiters, conducted by H. Eisler. Soloist: E. Busch (Songs). **10.10,** Recitations. **10.40,** Variety Programme by the Small V.A.R.A. Orchestra, and De Notenkrakers. In an interval at **11.10,** News **12.40 a.m.** (Sunday), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**12.55 p.m.** till Close Down, Programme of the Catholic Radio Society (K.R.O.). **12.55,** Concert by the K.R.O. Sextet: March (Schoolmeyer); Manchurian Sketches (Glun); Bei der Zigeunerkapelle (Meyer-Helmund); Abaggar (van Lindern); Selection from William Tell (Rossini); Popular Music on Gramophone Records: Capricietto Wiavoletta (Lindemann); Pax in Terra (Kennes); Miniature Suite (Lustenhouwer); Waltz, neu Wien (Strauss); Impromptu (Schubert). **2.25 to 2.40,** Interval. **2.40,** Programme for Young People. **3.10,** Programme for Children. **4.40,** Popular Music on Gramophone Records. **5.40,** Concert by the K.R.O. Orchestra, conducted by M. van 't Woud: Potpourri of Marches (Blankenburg); Overture, Light Cavalry (Suppé); Suite, In the Circus (Armandola); March, Blaze away (Holzmann). **6.10,** Sports Talk. **6.25,** Concert (contd.): Overture, Prinzess in Goldschuh (Rust); Rhapsody (Snoeck); Three Elfin Dances (Waldo-Werner); Waltz, Blondinen (Ganne). In the Harbour of Port Said (Armandola). **7.0,** Press Review. **7.20,** Concert (contd.): Overture, The Daughter of the Regiment (Donizetti); Grieg Potpourri (Urbach); Gipsy Idyll (Percy). **7.50,** Talk on Philosophy. **8.10,** Police Notes. **8.25,** Election Address. **8.55,** Variety Programme by the K.R.O. Boys, conducted by P. Lustenhouwer, J. Mossel (Songs), the Vereenigde Haagsche Spelers and J. Nieuwenhuis (Recitations): March, Heut' reiss ich die Welt zusammen (Strauss-Grün); Schau mir ins Auge (Strauss-Grün); Slav Rhapsody (Friedemann). **9.10,** News Bulletin. **9.15,** Recitations. **9.30,** Variety Programme (contd.): Melody (Rawiez); Overture to a Musical Play (Lincke); Tango (Ralton); Wir zahlen keine Miete mehr (Heymann). **9.55,** Verzekering tegen ongevallen—Radio Play (Bekeffi); Selection from Ball in Savoy; (Abraham); Viennese Waltzes (Ziehrer); Spanish Serenade (Welser); Potpourri (Golwyn); Melody (Lesso-Valerio); Wenn das Orchester spielt (Corzilius); Finale. **11.40,** News. **11.45,** Popular Music on Gramophone Records. **12.40 a.m. (Sunday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**8.20 p.m.,** Radio Concert. **9.0,** Weather, Racing Results and News. **9.15,** Gramophone Concert. **12 Midnight to 1.0 a.m.** (Sunday), Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight,** I.B.C. Variety Hour. **12.57,** I.B.C. Goodnight Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL. See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Popular Music on Gramophone Records. **12.50 p.m.,** Weather, Time, and News. **1.0,** Orchestral Concert conducted by Egbert Grape. Soloist: Franz Wolf (Baritone). March, Frühlingseinzug (Blon); Overture, Ilka (Doppler); Baritone Solos: (a) Der Freund (Wolf), (b) Heimweh (Wolf), (c) Zueignung (Strauss), (d) Heimliche Aufforderung (Strauss); Waltz, Samt und Seide (Ziehrer); Suite from As You Like It (Wetzler); Czardas No. 8 (Michiels); Es liegt eine Krone im grünen Rhein (Pachernegg); Selection from Hoheit tanzt Walzer (Ascher). In the interval at **2.0,** News. **2.35,** Gramophone Concert: Sonata No. 23 in F Minor, Op. 57 (Appassionata) (Beethoven); Clarinet Quintet in A (Mozart). **3.30,** Programme for Children. **3.50,** Talk: Little-known Hills and Valleys in the Eifel District. **4.10,** Talk: The Work of German Women on the Frontiers and Abroad. **4.30,** Concert by the Castrop-Rauxel Choir, conducted by Dr. Wilhelm Kölsche and Soloists: Egbert Grape (Pianoforte) and Rudi Rhein (Violin). Pianoforte Pieces from Child Life (Kullak); Choir: (a) Erschienen ist der herrliche Tag (Hermann), (b) Dir, dir Jehova will ich singen (Bach), (c) Herr unser Gott, wie gross bist du (Schnabel); Sonatina in A for Violin and Pianoforte (Schubert); Choir: (a) Morgenpsalm (Zuschneid), (b) Die Knospe (Zuschneid), (c) Festliches Treiben (Krause); Pianoforte Pieces from the Album for the Young (Schumann); Choir: (a) Morgenwanderung (Nellius), (b) Frisch auf (Nellius), (c) Tandaradei (Nellius), (d) Ringelreih'n (Rorich); Impromptu in G for Pianoforte (Schubert). **5.45,** English Reading. **6.10,** Reading. **6.30,** The World on Gramophone Records: Dalmatia. **6.55,** Weather, Time, Economic Notes, and Sports Results. **7.0,** Transmission for all German Stations relayed from **Stuttgart. 8.0,** News. **8.5,** Concert of Sacred Music relayed from the Reformation Church, Essen. The Choir, conducted by Dr. Rudolf Czach. Soloists: Walter Schneiderhan (Violin); and Dr. Rudolf Czach (Organ). Fantasia in D Minor for Organ (Weckmann); Choir: Ehre sei dir Christe (Schütz); Choral Variations for Organ, Da Jesus an dem Kreuze stund (Scheidt); Violin Solo: Andante (Bach); Choral Fantasia for Organ, O Lamm Gottes, unschuldig (Bach); Largo from the Suite in Old Style for Violin and Organ (Reger); Organ Solos (Bach): (a) Christ lag in Todesbanden, (b) Jesus Christus, unser Heiland, (c) Erstanden ist der heilige Christ, (d) Heut' triumphieret Gottes Sohn; Violin Solo: Chaconne (Bach); Choir: Easter Motet (Spitt); Prelude and Fugue in D for Organ (Bach). **9.15,** The Return—a Dramatic Legend (Karl Roettger), with Music by Leo Kaufmann. **10.5,** News and Sports Notes. **10.30,** Concert. **12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—12 Noon,** Weather and Time. **12.5 p.m.** (approx.), Gramophone Concert of Old Music: Adagio from the Partita in G Minor (Bach); Chaconne (Händel); Song, O hätt' ich Jubals Harf' (Händel); Melodie (Gluck); Two Pieces for Trio (Rameau); Second Movement from the Sonata in C for Organ and String Orchestra (Mozart); Sonata in C Minor (Veracini); Sarabande et Tambourin (Leclair); Motet—Vidi speciosam (da Vittoria); Sanctus (Palestrina); Air (Johann Matheson); Noeturne (Lully). **1.0,** News, Weather, and Time. **1.15,** Gramophone Concert of Light Music: Two Pieces (Respighi): (a) Danza rustica, (b) Bergamasca; Wanderer-Fantasia (Schubert); Larghetto and Rondo from the Violin Concerto in D (Beethoven); Jubel-Ouverture (Weber). Exchange Quotations after the Concert. **2.0,** Wireless Notes. **2.10,** Wireless Hints. **2.30,** Programme for Children. **3.15,** Review of Periodicals. **3.45,** Economic Notes. **4.0 to 4.15,** Talk on Music. **4.30,** Concert from **Berlin (Witzleben). 6.0,** Experiences on Walking Tours. **6.25,** German Lesson. **6.45,** A Popular Science Talk. **7.0,** Transmission for all German Stations—relayed from **Stuttgart. 8.0,** Concert by the Leipzig Male Voice Choir, relayed from the Academy of Music, Berlin. Part I Music of Berlin Composers: O Gott, wie bist du gross! (Alfred Toepler); Two Pieces (Hugo Kaun): (a) Weine leise, (b) Am Marktplatz; Two Pieces (Max Wiedemann): (a) Gebet, (b) Erdgeboren; Bergmannslied (Hanns Miessner); Du sollst an Deutschlands Zukunft glauben (Alexander Preuss). Part II: Music of Leipzig Composers: Deutsche ostern (Meyer-Ambros); Provemion (Kiessig); Old German Watchman's Song (Karg-Elert); Hunter's Song (Karg-Elert); Treue Liebe (Weismann); Mien Lied (Wohlgemuth). **8.45,** Leipzig-Breslau Transmission: The Six Towns—Löbau, Görlitz, Lauban, Kamenz, Zittan, and Bautzen—a Radio Picture from the Oberlausitz. **10.5,** News Bulletin. **10.15** (approx.), Chamber Music: Trio in C for Pianoforte, Violin, and 'Cello, No. 3 (Haydn); Sonatina in G Minor for Violin and Pianoforte, Op. 137, No. 3 (Schubert); Ten Variations on the Song, Ich bin der Schneider Kakadu, from Die Schwestern von Prag (Müller-Beethoven). **11.30 to 1.0 a.m. (Sunday),** Interval. **1.0 a.m.** (also on **Zeesen, 31.38 metres**), Third Act of Parsifal (Wagner), from the New Theatre, on Gramophone Records. **3.0 a.m.** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**7.0 p.m.,** Quintet Concert. **8.0,** Concert by the Zarja Orchestra. **9.0,** Vocal Quintet Concert. **10.0,** Time and News Bulletin. **10.15,** Light Music.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Radio Journal, Medical Talk on the Treatment of Nervous Children and Request Gramophone Records. **9.15,** News Bulletin. **9.30 to 10.0,** Interval. **10.0,** Linguaphone English Lesson. **10.30,** Chimes and Time Signal. **10.35** (approx.), Instrumental and Vocal Concert. **12.45 a.m. (Sunday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**6.25 p.m.,** Popular Concert by a Village Band, conducted by F. Vitek. **7.0,** See **Prague. 7.10,** Talk on Famous Men and Inventors. **7.25,** See **Prague. 8.0,** Cabaret Programme. **10.0,** See **Prague. 10.15,** See **Bratislava. 11.30** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.—5.0 p.m.,** Orchestral Concert, conducted by Erich Kloss. **6.15,** Wireless Hints. **6.30,** Programme for Young People. **7.0,** Transmission for all German Stations, relayed from **Stuttgart. 8.0,** Concert by the Station Orchestra, conducted by Karl List. Soloists: Cläre Hardt (Soprano), Elisabeth Hallstein (Colatura Soprano), and Hans Heinz Hamer (Baritone). **10.20,** Time, Weather, News and Sports Notes. **10.45,** Serenade, conducted by Erich Kloss. **12 Midnight** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredrikstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.—4.30 p.m.,** Light Music on Gramophone Records. **5.30,** An Easter Play for Children. **6.30,** Instrumental and Vocal Concert of Popular Music. **7.15,** Weather Forecast and News Bulletin. **7.30,** Programme of Songs and Accordion Music. **8.0,** Time Signal. **8.1,** Signe Lund Pianoforte Recital. **8.30,** Reading. **9.0,** Concert by the Station Orchestra, conducted by Hugo Kramm: Overture, St. Paul (Mendelssohn); Concerto grosso in F Minor (Searlatti) for Two Violins, 'Cello, Pianoforte and Strings; Symphonic Poem, Zorohayda (Svendsen); Veni Creator (Lalo);

Air (Bach). 9.40, Weather Forecast and News Bulletin. 10.0, Concert by the Station Orchestra (contd.): Symphony No. 3, the Eroica (Beethoven). 11.0 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Report and Giornale Radio. **8.20,** Sports Notes and Gramophone Records. In the interval at **8.30,** Time and Announcements. **8.45,** Katja the Dancer—Operetta (Gilbert). In the intervals, Review of New Books and Miscellaneous Announcements. **10.55,** News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**6.45 p.m.,** Talk on Music. **7.0,** Le Journal Parlé. **8.20,** Weather. **8.30,** The Christ—Sacred Drama (Charles Grandmougin), with Incidental Music by Clément Lippacher. **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Gramophone Concert of Light Music. **7.30,** Answers to Correspondents. **7.35,** Gramophone Concert (contd.). **8.0,** Talk: The Event of the Week. **8.5,** Theatre Notes. **8.15,** Interval. **8.39,** Concert of Chamber Music. **9.0,** Interval. **9.10,** Concert of Dance Music by the Sonora Band, conducted by Fred Hoffmann. **11.0,** News. **11.5,** Dance Music on Gramophone Records. **12 Midnight** (approx.), Close Down.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Orchestral Concert: Adieu, New York (Auric); Pieces (Milhaud): (a) Air from The Nothing Doing Bar, (b) Tango des fratellini, (c) Ballet Music from Le train bleu; Three Small Pieces (Satie); Petites musiques (Schimtt); Petite Suite de Concert (Coleridge-Taylor); Ballet Music (Finck); Dance of the Tumblers (Rimsky-Korsakov); Suite, In the Circus (Armandola); Three Airs (Casadesus); Ballet Music from La boite à joujoux (Debussy). In the intervals at **1.0,** Exchange, News and Weather; and at **1.39,** Exchange. **2.0,** Exchange. **3.45,** Market Prices. **6.10,** Agricultural Talk. **6.30,** Orchestral Concert of Light Music. **7.45,** Review of the Latin Press. **8.0,** Dance Music and Light Music by the Medinger Orchestra. **8.30,** News, Weather and Sports Notes. **8.45,** Schumann Pianoforte Recital by Leon Kartun: Carnaval; Arabesque; Second Novelette. **9.15,** Press Review and News. **9.30,** Gramophone Concert of Operetta and Sound Film Music: Selection from The Gipsy Princess (Kalman); Airs (Offenbach) from: (a) The Drum Major's Daughter, (b) Madame l'Archiduc; Barcarolle from The Tales of Hoffmann (Offenbach); Two Airs from Ciboulette (Hahn); Air from The Bayadere (Kálmán); Hollywood Revue; Waltz from Evangeline (Jolson); Selection from The Show of Shows; Ole' Man River from Show Boat (Kern); The Pagan Love Song (Brown and Freed); Selection from The Gold-diggers of Broadway (Burne).

PORSGRUNO—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** See **Bratislava.** **5.10,** Talk on Economics. **5.20,** Czech Lesson for Germans and German Lesson for Czechs. **5.50,** Variety Music on Gramophone Records. **6.5,** Agricultural Report. **6.15,** Talk for Workers. **6.25,** News in German. **6.30,** German Transmission: The Mastersingers—Radio Play (Grüger). **7.0,** Chimes. **7.1,** News. **7.10,** Talk: The Revival of the Czech Language. **7.25,** Recital of Spring Poems. **8.0,** See **Moravská-Ostrava.** In the interval at **9.0,** Time Signal. **10.0,** Time Signal. **10.1,** News Bulletin. **10.15,** See **Bratislava.** **11.30** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.: **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.**—**6.0 p.m.** (from **Geneva**), Talk. **6.30** (from **Geneva**), Review of New Books. **7.0** (from **Geneva**), Weather and News. **7.30** (from **Geneva**), Talk on Films. **8.0,** Concert by the Radio Suisse Romande Orchestra. **9.0** (from **Lausanne**), Gala Concert for the 130th Anniversary of the Council of Vaud; Address; Concert and Talks. **10.0,** News and Weather. **10.10** (from **Lausanne**), Dance Music: Part I—Old Time Dance Music by the Moser Orchestra; Part II—Modern Dance Music, relayed from the Métropole Bel-Air. **11.45** (from **Geneva**), Russian Easter Service. **1.30 a.m. (Sunday),** Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—**4.0 p.m.,** Concert of Popular Music. **5.0,** Talk. **5.30,** Organ Recital: Prelude (Bach); Largo (Pergolesi); The Death of Aase (Grieg); Evening Calm (Hegg); Prelude (Reinecke); Choral. **6.0,** Talk: The Economic Importance of Manchuria and Events in the Far East. **6.30,** Reading. **7.0,** Weather Report. **7.5,** Choral Concert: Benedictus (Niels Gade); Ave verum (Mozart); Cavatina (Bangert); Motet (Sepsky); Song, Daughters of Sion (Mendelssohn); Legend (Tchaikovsky); Our Saviour Jesus Christ (Liszt). In the Interval at **7.35,** News. **8.0,** Divine Service. **9.0,** Weather Report. **9.5,** Reading. **9.35,** Concert. **10.20,** Divine Service. **11.45** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres,** and **2RO, 11,810 kc/s, 25.4 metres. 1.0 p.m.,** Time and Announcements. **4.30,** Programme for Children. **4.45,** Report of the Royal Geographical and Giornale Radio. **5.0,** Exchange and Announcements. **5.15,** Talk: Spring in Rome. **5.30 to 6.15,** Orchestral Concert: Napoli (Pennini); Sorridi giovinezza (Flaccone); Selection from La Gioconda (Ponchielli); Pictures from an Exhibition (Moussorgsky); Havana: Madrina (Rinaldi); Please (Marducci). **7.0 (Naples),** Shipping and Sports Notes. **7.10,** Atmospheric Signals. **7.20,** Giornale Radio and Agricultural Notes. **8.0,** Time, Announcements, and Light Music on Gramophone Records. **8.15,** Soprano Song Recital by Maria Teresa Bargoni. **8.45,** Relay from a Theatre. In the intervals: Review of New Books and Announcements. News after the Programme.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF on 31.48 metres;** and by **W2XAD on 19.56 metres.—1.0 a.m. (Sunday),** Hotel Park Central Orchestra, from **New York. 1.15,** Stock Reports. **1.30,** Lady Fingers (Pianists). **1.45 to 5.0, New York** Relay. **1.45,** The World To-day by James G. McDonald. **2.0,** Viennese Programme. **2.30,** The Economic World To-day. **3.0,** Blue Danube. **3.30,** Musical Programme. **4.0,** B. A. Rolfe and his Terraplane Orchestra. **5.0,** Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.—12.28 p.m.,** Time Signal from Neuchatel Observatory. **12.30,** Weather and News. **12.40** (from **Berne**), Light Music on Gramophone Records. **1.35,** Weather and Exchange Quotations. **1.45** (from **Berne**), Wireless Notes. **2.0** (from **Berne**), Book Review. **2.30** (from **Berne**), Famous Pianists—Etudes and Sonatinas reproduced by Willy Girsbeiger, followed by Gramophone Records of Popular Music. **3.0** (from **Berne**), Reading. **3.30** (from **Berne**), Chess Lesson. **4.0** (from **Berne**), Mouth Organ Recital. **4.30** (from **Berne**), Talk: Infectious Diseases. **4.45** (from **Berne**), Legal Talk. **5.0,** Weather. **5.2 to 6.30,** Interval. **6.30** (from **Basle**), Talk: Young People and the Theatre. **7.0,** Chimes from the Zürich Churches, followed by Time, Weather and Exchange. **7.15** (from **Basle**), Improvised Conversations (Paul Palmen). **7.45** (from **Berne**), Concert of Music for Wind Instruments and Pianoforte. **8.15** (from **Berne**), Dr. Johannes Jegerlehner reads from his own Works. **8.40** (from **Berne**), Das höllisch Gold—Opera (Bittner). **9.30** (approx.), Weather and News. **9.40** (from **Berne**), Dance Music on Gramophone Records. **11.0** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.—4.0 p.m.,** Orchestral Concert: Overture, Light Cavalry (Suppé); Waltz, Roses from the South (Joh. Strauss); Arabian Intermezzo, Suleika (Lindsay-Theimer); Selection from Tiefland (d'Albert); Waltz (Brusch); Tango, Wenn man sein Herz verliert (Stransky); Viennese Operetta Melodies (Robrecht). **5.5,** Programme for Children. **5.30** (from **Göteborg**), Accordion Music. **6.15,** Light Music on Gramophone Records. **7.15,** Weather and News. **7.30,** Talk for Easter. **8.0,** Easter Programme by the Radio Orchestra. **9.45,** Weather and News. **10.0,** Dance Music. **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Gramophone Concert: Overture, Coriolanus (Beethoven); Te Deum and Sanctus (Palestrina); Air from Le jongleur de Notre-Dame (Massenet); Arioso from Benvenuto Cellini (Diaz); Toccata in D Minor (Reger); Prelude and Fugue in D (Bach); Benedictus (Mozart); O salutaris (Cherubini); Prelude and Fugue in E Flat (Bach); Preludes Nos. 11, 19, and 8 (Chopin); Mazurkas Nos. 2 and 21 (Chopin); Waltz No. 2 in G (Chopin); Etudes Nos. 5 and 6 (Chopin); Minuet (Paderevsky); Spring Song (Mendelssohn). **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Selection from Faust (Gounod), on Gramophone Records. **2.0,** Gardening Talk in German. **2.15,** Gramophone Concert: Waltz, Frühlingsstimmen (Joh. Strauss); Couché du soleil (Heller); The Wedding of the Winds (Hall); Waltz, Over the Waves (Rosas); Gipsy Airs (Dvorák); Berceuse russe (Berlin); Military March (Schubert); Moment musical (Schubert); Air (Youmk); March of the Tin Soldiers (Jessel); Sonny Boy (Jolson); Knits napolitaines (Zamecnik); Jolly Coppersmith (Peters); March, King Cotton (Sousa); Suite, The Sleeping Beauty (Tchaikovsky); Air from Sadko (Rimsky-Korsakov). **3.15 to 3.45,** Interval. **3.45,** Talk: The Adventurous Life of Isaac Albeniz. **4.0,** Orchestral Concert, conducted by Maurice de Villers: Overture, Benvenuto Cellini (Berlioz); Descriptive Symphony (Berlioz); Selection from Hulda (Franck); Pastorale (Franck); Redemption (Franck); Tone Poem, Death and Transfiguration (R. Strauss). **6.0,** Legal Talk in German. **6.15,** French Elocution Lesson. **6.30,** Mandoline Concert, relayed from Thionville. **7.30,** Time and News. **7.45,** Variety Music on Gramophone Records. **8.15,** Press Review in German, and Lottery Results. **8.30,** Extracts from Carmen—Opera in Four Acts (Bizet), with Commentary. **10.0** (approx.), Press Review in French. **10.5,** Orchestral Concert of Jazz Music, conducted by Roskam. **11.0,** Gramophone Records: Symphonic Suite, Scheherazade (Rimsky-Korsakov); Hungarian Fantasia (Liszt). **12 Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.—12.20 p.m.,** Schubert and Schumann Song Recital by Karl Jeutsch (Baritone). **12.45,** Liszt Music on Gramophone Records. Concerto, No. 2, in A, for Pianoforte and Orchestra: Second Polonaise. **1.30** (from **Karlsruhe**), Concert by the Kornett Quartet. **2.0** (from **Mannheim**), Music for Two Pianofortes by Forgotten German Masters. Contrapoint Variations on a Gavotte by Händel, Op. 54 (Scholz); Impromptu, Op. 66, on a Motive from Schumann's Manfred (Reinecke); Waltz, Op. 86 (Kirchner). **2.30,** Time, News, Weather and Programme Announcements. **2.45** (from **Mannheim**), Beethoven Concert by the Mannheim Wind Instrument Quintet. Trio for Flute, Bassoon and Pianoforte; Quintet for Oboe, Clarinet, Horn, Bassoon and Pianoforte. **3.30,** Programme for Children. **4.30,** Unveiling of a Memorial Tablet to the Inventor, Dr. Carl Benz, at his Grave in Ladenburg (on Gramophone Records). **5.0,** Concert of Marches by a Nazi Storm Troop Band. **5.50,** Time and Sports Notes. **6.0** (from **Freiburg**), Talk: The Redemption Idea in Nature. **6.20** (from **Karlsruhe**), Organ Recital of Bach Variations. **6.50,** Time and News. **7.0,** Transmission for all German Stations from Steam Wagon to Motor Coach—a Radio Sequence in Connection with the Carl Benz Memorial (Karl Köstlin). **8.0,** Orlando di Lasso Concert on the Fourth Centenary of the Composer's Birth. The Philharmonic Orchestra, the Station Choir and Artur Faiss (Guitar). Heu, quos dabimus; French Chansons: (a) Quand un cordier cordant, for Oboe, Violin, Horn and Bassoon, (b) Du Bellay, for Contralto and Lute, (c) Si je suis brun, for Soprano, Flute, Viola, Bassoon, Lute and Harpsichord, (d) Soyons joyeux, for Oboe, Violin, Viola and Bassoon; German Songs: (a) Was heut soll sein, (b) Ich weiss mir ein meidlein hübsch, (c) Choral: Wem soll man jetzund trawen, (d) Baur, baur, was tregst im Sacke; Italian Madrigals and Villanelles: (a) Choral: Ben sono i premi tuoi, (b) Jo ti vorria, (c) Matona mia cara, (d) S'io ti vedess, (e) Prendi l'aurata lira, (f) Psalm, De profundis. **9.10,** Concert by the Philharmonic Orchestra, conducted by Gustav Görlich. Soloist: Georg Beerwald (Violin). March and Gavotte from Der Tod des Herkules (Rudolph); Overture, Prometheus (Beethoven); Two Romances for Violin and Orchestra (Beethoven); German Dances and Contradanses (Beethoven); Ballet Music, Les petits riens (Mozart). **10.0,** Time, News, Weather and Programme Announcements. **10.20,** Concert of New Gramophone Records, with Commentary. **10.45,** See **Munich.** **12 Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—**6.0 p.m.,** News Bulletin. **6.15,** Operetta Music: Selection from (a) La Basoche (Messager), (b) Coups de Roulis (Messager), Nina Rosa (Romberg). **6.30,** Night on the Bare Mountain (Mussorgsky), by a Symphony Orchestra. **6.45,** Sound Film Music. **7.0,** Music by a Viennese Orchestra. **7.15,** Racing Results, Market Prices and News Bulletin. **7.25,** Local News Bulletin. **7.30,** Opera Music: Arias from (a) Aida (Verdi), (b) Sigurd (Reyer), (c) Figaro (Mozart). **7.45,** 'Cello Solos: (a) Sonata (Handel), (b) Harlequin (Hopper), (c) Nocturne (Chopin). **8.0,** Orchestral Concert: Melody from La Boutique fantasque (Rossini-Respighi); The Clock and the Dresden-Figures (Ketelbey); Hungarian March (Berlioz); Overture, Morning, Noon and Night (Suppé). **8.30** Military Music. **8.45,** Accordion Music. **9.0,** Extracts from Hérodiade—Opera (Massenet), followed by Light Music. **10.0,** Music by an Argentine Orchestra. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco: Extraits (Pégury); Dans l'Ascenseur (Duvernois); Selection from Der Rosenkavalier (R. Strauss); Air from La Favorita (Donizetti); Turkish March (Mozart); L'Adieu à Ninon (Guillaume); Balletto (Matini). **11.0,** Concert: Rumba d'amour; Overture, The Caliph of Bagdad (Boieldieu); Air from Mignon (Thomas); Emperor Waltz (Strauss); Air from Carmen (Bizet). **11.30 to 12 Midnight,** Programme in English by the B.B.C. W. Brown-Constable announcing. **11.30,** Variety Music: You'll die if you worry; Murder in the air; The Day I went to Wembley; Yodelling Solomon; Old Time Song Medley; Oh! how he looks at me; Laughing Clara. **11.57,** B.B.C. Goodnight Melody. **12 Midnight,** News, Weather Forecast and Announcements. **12.5 a.m. (Sunday),** Orchestral Music. **12.15,** Military Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.10 p.m.** till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.—5.10 to 6.0,** Concert on Gramophone Records. **6.35,** Giornale Radio, Agricultural and Dopolavoro Notes. **7.0,** Time and Gramophone Records. **7.20,** Giornale Radio. **7.45,** Tourist Report and Gramophone Records. **7.0,** Announcements, Giornale Radio, Weather, and Gramophone Records (contd.). **8.30,** Talk: Events and Problems. **8.45,** An Operetta in Three Acts. In the intervals, Review of Books, Announcements and Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and **5,969 kc/s, 50.26 metres (Evening);** 10 kW.—**11.0 to 11.15 a.m.,** Religious Announcements in Various Languages. **8.0 to 8.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW.; and **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.—7.15 p.m.,** Lieder Jung Werners vom Rhein und aus Welschland a Song Cycle (Hugo Brückler). **7.50,** Time, Weather and News. **8.0,** The Gondoliers—Operetta in Four Acts (Gilbert and Sullivan). In an interval at **9.25,** News. **10.15,** Announcements. **10.20,** Concert of Light Music.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Light Music on Gramophone Records. **1.20,** Weather Forecast. **1.25 to 3.25,** Interval. **3.25,** Military Correspondence. **3.35,** Programme for Children. **4.0,** Light Music on Gramophone Records. **4.40,** Talk: Easter Customs. **5.0,** Popular Music on Gramophone Records. **5.40,** Topical Talk. **5.55,** Programme Announcements. **6.0,** Easter Service and Chimes from Wawel Cathedral, relayed from **Cracow, 959 kc/s, 312.8 metres. 7.0,** Topical Talk. **7.15,** Reading. **8.0,** Popular Concert. In the interval, Sports Notes and Radio Journal. **10.5,** Chopin Pianoforte Recital by B. Woltowicz: Nocturne in B Flat Minor; Polonaise in D Minor; Two Mazurkas: (a) in A Minor, Op. 68, (b) in C, Op. 56; Waltz in A Flat, Op. 44; Impromptu in F Sharp; Three Etudes: (a) in F, Op. 25, (b) in A Flat, (c) in A Minor, Op. 25. **10.40,** Talk: From Haifa to Jerusalem. **11.0,** News for Members of the Polish Polar Expedition.

ZURICH.—See **Schweizerischer Landessender.**

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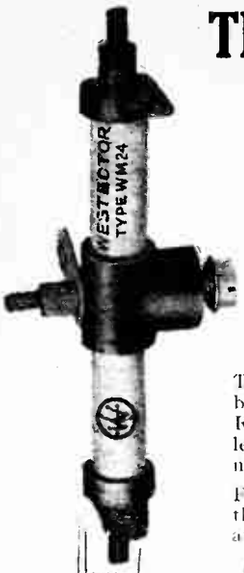

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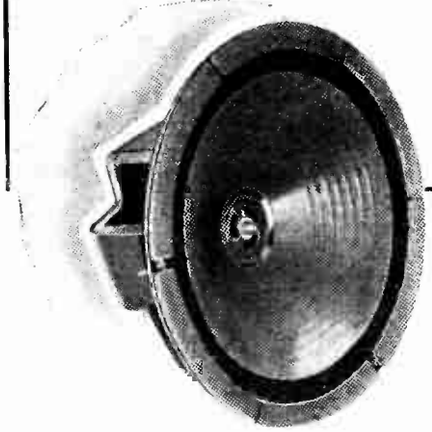

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Here is a new model B.T.H. R.K. Reproducer specially designed for operation by a "Quiescent Push-Pull" output stage. It incorporates a special accurately matched transformer to suit Mazda PEN.220A valves. The speaker itself is of the well-known "Minor" R.K. type with powerful permanent magnet. The combination produces the best possible results from Q.P.P. receivers.

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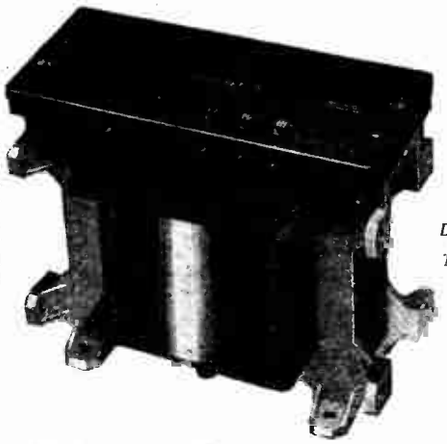

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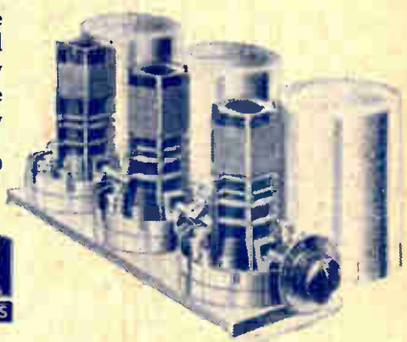

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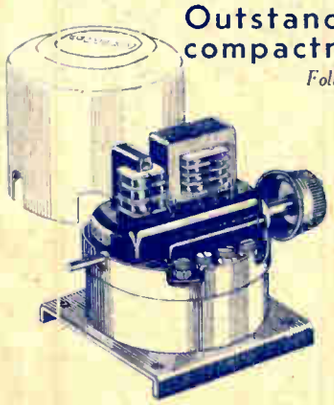

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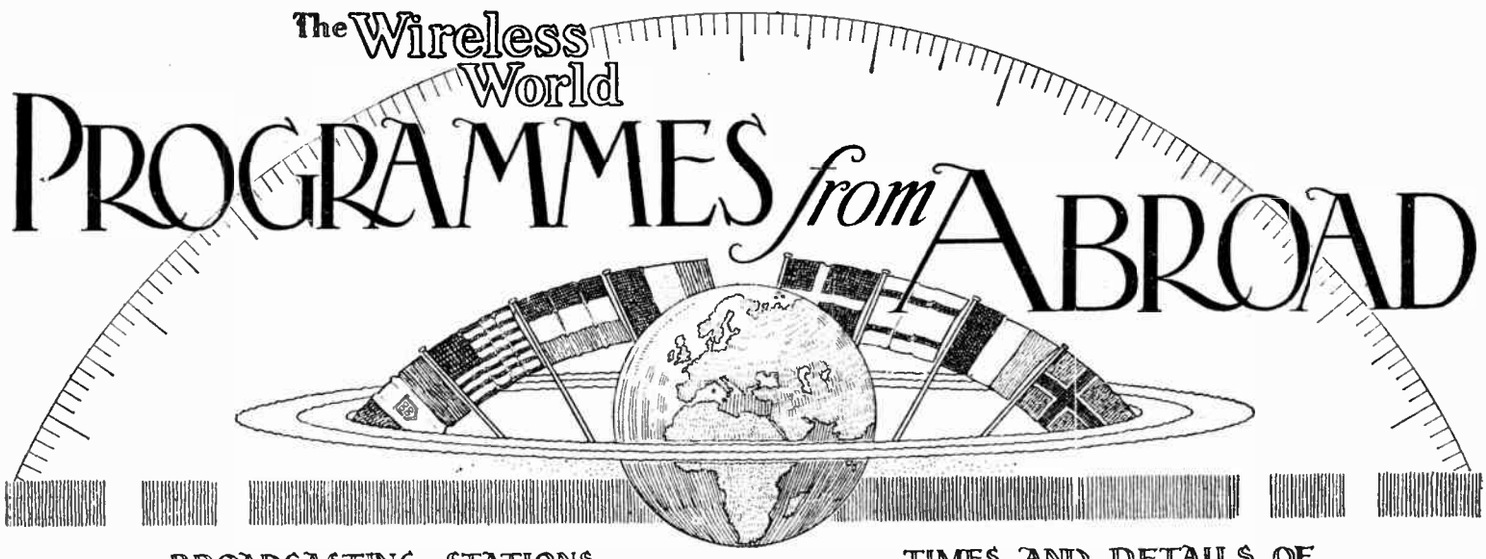

BROADCASTING STATIONS ARRANGED IN ORDER OF WAVELENGTH

TIMES AND DETAILS OF FULL WEEK'S FOREIGN TRANSMISSIONS

Metres.	Kc.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania)	
1875	160	8.5	Huizen (Holland)	
1796	167	40	Lahti (Finland)	
1725	174	75	Radio Paris, C.F.R.	
1635	183.5	60	Zeesen (Königswusterhausen) (Germany). (*S.-W. Stn. DJA on* 31.38 *m.*)	
1554.4	193	30	Daventry National	
1538	195	7	Ankara (Angora) (Turkey)	
1481	202.5	100	Moscow, RVI (Old Komintern) (Russia)	
1446	207.5	13	Eiffel Tower, FL, Paris	
1412	212.5	120	Warsaw I (Poland)	
1380	217.5	100	Novosibirsk, RV6 (Russia)	
1354.4	221.5	30	Motala (Sweden). (*Relays Stockholm*)	
1304	230	100	Moscow, WZSPS (Trade Union) (Russia)	
1275	235	0.5	Tunis-Kasbah (Tunisia)	
1230	244	0.6	Boden (Sweden). (*Relays Stockholm*)	
1200	250	5	Stamboul (Turkey)	
1200	250	21	Reykjavik (Iceland)	
1190	252	200	Luxembourg (*Testing*)	
1170	256	25	Tashkent, RV11 (Russia)	
1154	260	7.5	Kalundborg (Denmark). (*Relays Copenhagen*)	
1117	268.5	40	Moscow, Popoff RV58 (Russia)	
1083	277	60	Oslo (Norway)	
1071	280	35	Tiflis, RV7 (Russia)	
1035	290	36	Kiev, RV9 (Russia)	
1000	300	100	Moscow (Russia) (*S.-W. Stn. on* 50 *m.*)	
938	320	20	Kharkov, RV4 (Russia)	
857	350	100	Leningrad (Russia)	
840	357	18.5	Budapest (Hungary)	
825	363.6	50	Sverdlovsk, RV5 (Russia)	
770	389	0.6	Ostersund (Sweden). (*Relays Stockholm*)	
760	395	1.3	Geneva (Switzerland). (*Relays Sottens*)	
720	416.6	20	Moscow, RV2 (Experimental) (Russia)	
690	434.6	1.5	Oulu (Uleaborg) (Finland)	
680	441.2	0.6	Lausanne (Switzerland). (*Relays Sottens*)	
574.7	522	0.7	Hamar (Norway). (*Relays Oslo*)	
574.7	522	7	Ljubljana (Yugoslavia)	
569	527	0.25	Freiburg-im-Breisgau (Germany). (*Relay Stn.*)	
568.1	528	2	Grenoble (France)	
566	530	0.25	Hanover (Germany). (*Relays Hamburg*)	
563	533	16	Wilno (Poland). (*Relay Station*)	
560	536	0.25	Augsburg (Germany). (*Relays Munich*)	
560	536	1.5	Kaiserslauten (Germany). (*Relays Munich*)	
558.6	537	1	Tampere (Finland). (*Relays Helsinki*)	
550	545	18.5	Budapest No. 1 Lakihegy (Hungary)	
542	554	10	Sundsvall (Sweden). (*Relays Stockholm*)	
537.6	558	3	Palermo (Italy)	
533	563	60	Munich (Germany)	
525	571	15	Riga (Latvia)	
517	580	15	Vienna (Rosenhügen) (Austria)	
509	589	15	Brussels No. 1, Velthem (Belgium). (*In French*)	
500.8	599	20	Florence, 1FI (Italy). (*Relays Turin*)	
495.8	605	1.2	Trondheim (Norway)	
488.6	614	120	Prague, No. 1 (Czechoslovakia)	
480	625	50	North Regional (Manchester)	
472.4	635	60	Langenberg (Germany)	
465.8	644	1.5	Lyons la Doua, PTT (France)	
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland).	
453.2	662		San Sebastian, EAJ8 (0.6 kW.); Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (*relays Heilsberg*); Klagenfurt (0.5 kW.) (Austria) (*relays Vienna*); Porsgrund (0.7 kW.) (*relays Oslo*), Tromsö (0.1 kW.) Bodö (0.5 kW.) (Norway); Upsala (0.15 kW.) (Sweden) (*relays Stockholm*).	
453.2	662	0.25	Agen (France)	
453.2	662	7	Milan (*Experimental Relays Rome*)	
450.3	666	20	Madona (Latvia)	
447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.); Rjukan (0.15 kW.), Notodden (0.08 kW.) (Norway) (*relays Oslo*).	
441.2	680	50	Rome, 1RO. (*S.-W. Station*, 2 *RO on* 25.4 *m.*)	
435.4	689	55	Stockholm, SASA (Sweden)	
430.4	697	2.5	Belgrade (Yugoslavia)	
424.3	707	2	Madrid, EAJ7 (Union Radio). (*After* 7.0 *p.m.*)	
424.3	707	100	Moscow, Imini Stalina (Russia)	
419.5	715	1.5	Berlin, No. 1, Witzleben (Germany)	
416.4	720.5	5	Rabat (Morocco)	
413	725	60	Athlone (Irish Free State)	
408.7	734	16	Katowitz (Poland)	
403.8	743	25	Sottens (Radio Suisse Romande) (*Switzerland*)	
398.9	752	25	Midland Regional	
394.2	761	12	Bucharest (Roumania)	
389.6	770	120	Leipzig (Germany)	
385.1	779	8	Toulouse (Radiophonie du Midi) (France)	
385.1	779	10	Stalino, RV26 (Russia)	
381	788	16	Lwow (Lemburg) (Poland)	
376.4	797	50	Scottish Regional (Falkirk)	
372.2	806	1.5	Hamburg (Germany)	
370.1	810.5	0.8	Radio, LL, Paris	
368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (1) kW.) (Finland) (*relays Lahti*); Kharkov, RV20 (10 kW.) (Russia).	
365.8	821	0.7	Fredriksstad (Norway). (*Relays Oslo*)	
364.1	824	1	Bergen (Norway)	
363.6	825	13	Algiers (Algeria)	
360.6	832	60	Mühlacker (Stuttgart) (Germany)	
355.9	843	50	London Regional (Brookmans Park)	
352.1	852	7	Graz (Austria). (*Relays Vienna*)	
348.8	860	7.6	Barcelona, EAJ1 (Spain)	
348.8	860	10	Leningrad, RV70 (Russia)	
345.2	869	11.5	Strasbourg, PTT (France)	
341.7	878	35	Brno (Brunn) (Czechoslovakia)	
338.2	887	15	Brussels II, Velthem (Belgium). (*In Flemish*)	
335	896	5	Cadiz (Spain)	
334.4	897	1.9	Poznan (Poland)	
331.5	905	50	Milan (Italy). (*Relays Turin*)	
328.2	914	60	Poste Parisien (France)	
325	923	60	Breslau (Germany)	
321.9	932	10	Göteborg (Sweden). (*Relays Stockholm*)	
318.8	941	0.25	Dresden (Germany). (*Relays Leipzig*)	
318.8	941	1.5	Naples, INA (Italy). (*Relays Rome*)	
315.8	950	1.6	Marseilles, PTT (France)	
312.8	959	1.7	Cracow (Poland)	
312.8	959	10	Genoa, IGE (Italy). (*Relays Turin*)	
309.9	968	1	Cardiff	
307	977	0.7	Radio Vitus (Paris). (*S.-W. Stn. on* 43.75 *m.*)	
307	977	0.75	Zagreb (Yugoslavia)	
304	986	13	Bordeaux Lafayette, PTT (France)	
301.5	995	50	North National (Manchester)	
298.8	1004	11	Tallinn (Esthonia)	
296.1	1013	20	Hilversum (Holland). (7 *kW. before* 4.40 *p.m.*) (*Exchanges wavelengths with Hilversum every three months.*)	
293.5	1022	0.7	Limoges, PTT (France)	
293.5	1022	2.6	Kosice (Czechoslovakia)	
291	1031	10	Viipuri (Viborg) (Finland). (*Relays Helsinki*)	
288.3	1040	50	Scottish National (Falkirk)	
288.3	1040	1	Bournemouth (*Relay Station*)	

BROADCASTING STATIONS ABROAD (In Order of Wavelength).

Metres.	Kc.	kW.	Station.	Tuning Positions.
285.1	1052	0.7	Lyons (Radio-Lyon) (France)	
283.6	1058	0.5	German Relays (Berlin, Magdeburg, Stettin)	
283.6	1058	0.5	Innsbruck (Austria). (*Relays Vienna*)	
282.2	1063	2	Lisbon CT 1AA (Portugal). (*Short-wave Station on 31.25 m.*)	
281.2	1067	0.75	Copenhagen (Denmark)	
278.8	1076	13.5	Bratislava (Czechoslovakia)	
276.5	1085	60	Heilsberg (Germany)	
273.7	1096	7	Turin (Italy)	
271.5	1105	1.3	Rennes, PTT (France)	
269.8	1112	20	Bari (Italy)	
269.8	1112	0.25	Bremen (Germany). (*Relays Hamburg*)	
267.6	1121	1.5	Valencia (Spain)	
265.8	1128.5	1.3	Lille, PTT (France)	
263.8	1137	11.2	Moravska Ostrava (Czechoslovakia)	
261.5	1147	50	London National (Brookmans Park)	
259.3	1157	17	Frankfurt-a.M. (Germany)	
259.3	1157	2.3	Trier (Germany). (*Relays Frankfurt*)	
257.1	1167	10	Hörby (Sweden). (*Relays Stockholm*)	
255.1	1176	0.7	Toulouse, PTT (France)	
253.1	1185	5	Gleiwitz (Germany). (*Relays Breslau*)	
252	1193	1	Barcelona, EAJ15 (Assoc. Nat.) (Spain)	
249.6	1202	0.8	Juan-les-Pins, Nice (France)	
247.7	1211	10	Trieste (Italy)	
245.9	1220	0.12	Swansea	
245.9	1220		Berne (0.5kW.) (Switzerland)(*relays Beromünster*); Eskilstuna (0.2 kW.), Säffle (0.4 kW.) (Sweden) (*relays Stockholm*); Cassel (0.25 kW.) (Germany) (*relays Frankfurt*); Linz (0.5 kW.) (Austria) (*relays Vienna*); Pietarsaari (0.5 kW.), Turku (Abo) (0.5 kW.) (Finland) (*relays Helsinki*); Schaerbeek (0.1 kW.) (Belgium).	
244.1	1229	0.5	Basle (Switzerland). (*Relays Beromünster*)	
242.3	1238	1	Belfast (N. Ireland)	
240.6	1247	0.5	Stavanger (Norway)	
238.9	1256	2	Nürnberg (Germany). (*Relays Munich*)	
238	1260	1	Nimes (France)	
237.2	1265	3	Bordeaux, Sud-Ouest (France)	
235.5	1274	0.5	Kristiansand (Norway)	
235	1283	1.65	Lodz (Poland). (*Relay Station*)	
232.2	1292	0.25	Kiel (Germany). (*Relays Hamburg*)	
230.6	1301	—	Swedish Relay Stations. (Malmö, Norrköping, Karlstad and Trollhätten).	
227.4	1319	0.5	Flensburg (Germany). (*Relays Hamburg*)	
225.9	1328	10	Fécamp, Radio-Normandie (France)	
224.4	1337	1	Cork (Irish Free State)	
222.9	1346	0.15	Hüdiksvall (Sweden)	
219.9	1365	1.5	Béziers (France)	
218.5	1373	0.2	Plymouth	
218.5	1373	0.5	Salzburg (Austria). (*Relays Vienna*)	
217	1382	0.5	Königsburg (East Prussia) (Germany)	
217	1382	0.25	Karlstad (Sweden)	
215.6	1391	0.1	Brussels, Radio-Chatelineau (Belgium)	
215.6	1391	0.2	Halmstad (Sweden)	
214.3	1400	1	Aberdeen	
211.3	1420	1	Newcastle	
209.8	1430	0.8	Magyarovar, Miskolcz and Pecs (Hungary)	
207	1450	0.15	Boras (Sweden)	
206	1460	0.2	Ornsköldsvik (Sweden)	
204.1	1470	0.2	Gävle (Sweden)	
202.7	1480	0.25	Kristineham (Sweden)	
201.3	1490	0.25	Hälsingborg (Sweden)	
195	1530	0.2	Karlskrona (Sweden)	

PRINCIPAL SHORT-WAVE STATIONS.

(N.B.—Times of Transmission, given in parentheses, are approximate only and represent G.M.T.)

Metres.	Kc.	Call Sign.	Station.	Tuning Positions.
80.0	3,750	2RO	Rome	
70.2	4,273	RW15	Khabarovsk (Russia). (*Daily* 09.00–12.00)	
63.0	4,760	CT3AR	Funchal (Madeira). (*Wed.* 20.30, *Sun.* 14.30)	
62.56	4,795	VE9BY	London, Ont. (Canada). (*Sun.* 06.00)	
62.5	4,800	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 24.00)	
58.3	5,146	PMY	Bandoeng (Java). (*Daily* 12.20 *and* 07.00)	
58.0	5,172	OK1MPT	Prague (Czechoslovakia). (*Tues. and Fri.* 19.30.)	
54.52	5,502	W2XBH	Brooklyn, N.Y. (U.S.A.). (*Relays WCGU*)	
52.7	5,690	FIUI	Tananarive, P.T.T. (Madagascar)	
52.5	5,711	HCJB	Quito (Ecuador). (*Daily* 12.30)	
51.22	5,857	XDA	Chapultepec (Mexico)	
50.6	5,930	HKO	Medellin (Colombia)	
50.26	5,970	HVJ	Vatican State, Rome. (*Daily* 19.00)	
50.0	6,000	ZL3ZC	Christchurch (New Zealand). (*Wed.* 03.00, *Sat.* 07.30.)	
50.0	6,000	—	Bucharest (Roumania)	
50.0	6,000	RW59	Moscow (*Relays Trades Union Stn.*)	
50.0	6,000	EAR25	Barcelona, Radio Club (Spain). (*Sat.* 20.00)	
49.96	6,005	HRB	Tegucigalpa (Honduras). (*Daily ex. Sun.* 00.00–05.00.)	
49.83	6,020	W9XF	Chicago, Ill. (U.S.A.). (*Relays WENR*)	
49.8	6,023	XEW	Mexico City (Mexico). (*Daily* 01.00)	
49.67	6,042	W2XAL	Coytesville, N.J. (U.S.A.). (*Relays WRNY.*)	
49.6	6,048	W3XAU	Philadelphia, Pa. (U.S.A.). (*Relays WCAU.*)	
49.59	6,050	VE9HX	Halifax (Nova Scotia). (*Relays CHNS*)	
49.58	6,050	GSA	Empire Broadcasting, Zones 1–5	
49.5	6,060	VQ7LO	Nairobi (Kenya Colony). (*Daily* 16.30)	
49.5	6,060	W8XAL	Mason, Ohio (U.S.A.). (*Relays WLW*)	
49.43	6,069	VE9CS	Vancouver, B.C. (Canada)	
49.4	6,072	OXY	Skamlebaek (Denmark). (*Relays Copenhagen.*)	
49.4	6,072	UOR2	Vienna. (*Tues.* 13.00, *Thurs.* 15.00, *Sat.* 23.00.)	
49.34	6,080	W2XCX	Kearny, N.J. (U.S.A.). (*Relays WOR*)	
49.34	6,080	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
49.22	6,095	VE9GW	Bowmanville, Ont. (Canada). (*Daily* 20.00)	
49.2	6,098	ZTJ	Johannesburg (S. Africa). (*Weekdays* 09.00, 11.00 [*Sat.* 14.30] *and* 17.00, *Sun.* 13.00 *and* 17.30.)	
49.18	6,100	W3XAL	Bound Brook, N.Y. (*Relays WJZ*)	
49.1	6,110	VUC	Calcutta, India. (*Daily* 13.00)	
49.02	6,120	W2XE	Long Island, N.Y. (U.S.A.). (*Relays WABC.*)	
48.86	6,140	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
48.8	6,147	VE9CL	Winnipeg (Canada). (*Daily ex. Sun.* 00.30)	
48.65	6,167	XIF	Mexico City (Mexico)	
48.35	6,205	HKC	Bogota (Colombia). (*Daily* 15.00)	
48.2	6,220	2RO	Rome (Italy)	
48.05	6,243	HKD	Barranquilla (Colombia). (*Weekdays* 23.15)	
48.0	6,250	CN8MC	Casablanca (Morocco). (*Relays Rabat*)	
47.0	6,382	HC1DR	Quito, Ecuador. (*Daily* 01.00)	
46.69	6,425	W3XL	Bound Brook, N.J. (U.S.A.). (*Relays WJZ irregular.*)	
46.67	6,426	VE9BY	London, Ont. (Canada). (*Sat.* 01.00 *Sun.* 02.00.)	
45.38	6,611	REN	Moscow (*Relays Trade Union Stn.*)	
45.0	6,667	FM8KR	Constantine (Algeria). (*Mon. and Fri.* 23.00.)	
45.0	6,667	TGW	Guatemala City (Central America). (*Daily* 03.00.)	
43.75	6,860	—	Radio Vitus, Paris. (*Daily* 20.30)	
43.0	6,970	EAR110	Madrid. (*Tues. and Sat.* 22.30)	
41.7	7,195	VS1AB	Singapore (Malay States). (*Sun. and Wed.* 15.30.)	
41.6	7,211	EAR58	Teneriffe (Radio Club) (Canary Islands)	
41.5	7,230	HB9D	Zurich (Radio Club) (Switzerland). (*1st and 3rd Sun.*)	
41.0	7,320	HSP2	Bangkok (Siam). (*Mon.* 11.00)	
40.3	7,443	HBQ	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.15).	
39.7	7,556	HKF	Bogota (Colombia). (*Westinghouse Labs.*)	
39.4	7,612	X26A	Nuevo Laredo (Mexico). (*Thurs.* 16.00)	
38.7	7,797	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.45.)	
36.92	8,125	PLW	Bandoeng (Java). (*Daily* 10.00–14.00)	
34.68	8,650	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 23.00)	
34.68	8,650	VE9BY	London, Ont. (Canada). (*Mon.* 21.00)	
33.50	8,928	TGX	Guatemala City (S. America)	
32.26	9,300	—	Rabat (Morocco). (*Sun.* 21.00)	
31.58	9,500	PRBA	Rio de Janeiro (Brazil). (*Daily* 21.30)	
31.55	9,510	VK3ME	Melbourne (Australia). (*Wed. and Sat.* 10.00.)	
31.54	9,510	GSB	Empire Broadcasting, Zones 2, 4, 5	
31.48	9,530	W2XAF	Schenectady, N.Y. (U.S.A.) (*Relays WGY*)	
31.38	9,560	DJA	Zeesen (Germany). (*Daily* 13.00)	
31.35	9,570	SR1	Posen (Poland). (*Tues. and Thurs.* 17.30)	
31.35	9,570	W1XAZ	East Springfield, Mass. (U.S.A.). (*Relays WBZ.*)	
31.3	9,582	W3XAU	Philadelphia, Pa. (U.S.A.). (*Daily ex. Thurs. and Fri.* 21.00.)	
31.3	9,580	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 22.00–22.45.)	
31.29	9,585	GSC	Empire Broadcasting, Zone 3	
31.28	9,590	VK2ME	Sydney (Australia). (*Sun.* 10.00)	
31.25	9,598	CT1AA	Lisbon (Portugal). (*Tues. and Fri.* 22.00–24.00.)	
31.10	9,640	HS2PJ	Bangkok (Siam). (*Mon.* 02.00–05.00)	
30.43	9,869	EAQ	Aranjuez (Spain). (*Daily* 23.30, *Sat.* 18.00)	
30.0	10,000	—	Belgrade (Yugoslavia). (*Mon.* 19.00)	
29.3	10,238	T14NRH	Heredia (Costa Rica). (*Daily* 22.00 *and* 02.00.)	
28.98	10,350	LSX	Buenos Aires (Argentina). (*Daily* 20.30)	
26.83	11,180	CT3AQ	Funchal (Madeira). (*Tues. and Thurs.* 10.30–12.30.)	
25.63	11,700	FYA	Pontoise (France). (*Colonial Stn. E-W, daily* 20.00.)	
25.6	11,720	VE9JR	Winnipeg (Canada). (*Daily ex. Sat. and Sun.* 17.45.)	
25.53	11,750	GSD	Empire Broadcasting, Zones 1 & 4	
25.5	11,760	XDA	Chapultepec (Mexico). (*Daily* 20.00)	
25.4	11,810	VE9GW	Bowmanville (Canada). (*Daily* 18.00)	
25.4	11,810	2RO	Prato Smeraldo, Rome. (16.00 *and* 19.30)	
25.34	11,840	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
25.28	11,865	GSE	Empire Broadcasting, Zone 2	
25.27	11,870	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
25.2	11,905	FYA	Pontoise (France). (*Colonial Stn. N-S*)	
23.38	12,830	—	Rabat (Morocco). (*Sun.* 11.30)	
20.5	14,630	XDA	Chapultepec (Mexico). (*Daily* 19.30)	
19.9	15,075	T14NRH	Heredia (Costa Rica). (*Sat., Sun., Mon.* 16.00 *and* 21.00.)	
19.84	15,120	HVJ	Vatican State, Rome. (*Daily* 10.00)	
19.81	15,140	GSF	Empire Broadcasting, Zone 5	
19.73	15,200	DJB	Zeesen (Germany). (*Daily* 13.00–17.00)	
19.72	15,210	W8XK	East Pittsburg, Pa. (U.S.A.) (*Relays KDKA.*)	
19.68	15,244	FYA	Pontoise (France). (*Colonial Stn. E-W*)	
19.56	15,340	W2XAD	South Schenectady, N.Y. (U.S.A.) (*Daily* 18.00.)	
16.9	17,750	HSP	Bangkok (Siam). (*Sun. and Tues.* 21.00)	
16.88	17,770	GSG	Empire Broadcasting, Zone 2	
16.87	17,780	W3XAL	Bound Brook, N.J. (*Weekdays* 13.00)	
16.57	18,105	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
14.47	20,730	LSY	Buenos Aires (Argentina). (*Sun.* 21.00)	
13.97	21,470	GSH	Empire Broadcasting, Zone 3 (*Daylight working.*)	
13.92	21,540	W8XK	East Pittsburg (*Relays KDKA.*)	

FOREIGN SUNDAY PROGRAMMES

APRIL THE SIXTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Mattins from York Minster. Service from Carlisle Cathedral. Orchestral concert.
LONDON REGIONAL	Sunday Orchestral concert.
NORTH REGIONAL	Service from Carlisle Cathedral.
BELFAST	Service from Fisherwick Presbyterian Church, Belfast.

ABROAD

BRUSSELS (No. 2)	9 p.m. The Symphony Orchestra, conducted by A. Meulemans.
BUCHAREST	8 p.m. Operetta: "Kiritza," by Flechtenmacher.
COPENHAGEN	8 p.m. "The Messiah" (Handel), from the Cathedral.
HAMBURG	7 p.m. Easter Festival, an appeal to all classes of the Nation, from Hanover.
LANGENBERG	6.15 p.m. Opera: "Parsifal" (Wagner), from Cologne.
MUNICH	6.5 p.m. Opera: "Tannhäuser" (Wagner), from the National Theatre.
RIGA	6.30 p.m. Opera: "Faust" (Gounod), from the National Opera House.
ROME	5 p.m. Symphony concert, conducted by B. Molinari, from the Augusteo.
STOCKHOLM	7.30 p.m. Pianoforte recital by Anita Harrison.
STUTTGART	12.30 a.m. Unveiling Ceremony of the Karl Benz Memorial, relayed from Mannheim.
TURIN	9 p.m. Opera: "Aïda" (Verdi), from the Scala, Milan (relayed by **Berlin, Florence, Genoa, Heilsberg, Lyons-la-Doua, Milan, Trieste, and Vienna**).

ATHLONE

725 kc/s, 413 metres; 60 kW., and **Cork, 1,337 kc/s, 224.4 metres.** **8.30 p.m.,** Time Signal. **8.31,** Concert by the Station Orchestra. **9.0,** Irish Songs by Anne Ni Oisin. **9.15,** Programme by the Dublin Repertory Company. **9.45,** Choral Concert of Easter Hymns and Songs. **10.15,** The Station Orchestra. **10.30,** Contralto Solos by Betty Byrne. **10.50,** The Station Orchestra. **11.0,** Time Signal, News, Weather Report and Close Down.

BARCELONA

Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**12 Noon,** Chimes from the Cathedral and Weather Forecast. **2.0 p.m.,** Popular Music on Gramophone Records. **2.30** (in an interval). Theatre Notes. **3.0,** Film Review, followed by Concert by the Station Sextet. **4.0,** Programme for Hospitals and other Benevolent Institutions. **5.0 to 6.30,** Interval. **6.30,** Agricultural Talk in Catalan and Light Music on Gramophone Records. **7.0,** Concert by the Station Orchestra. **7.30,** Song Recital by Pepita Paulet. **8.0,** Concert by the Station Orchestra. Soloist: Concepcion Callas (Songs). **9.0,** Dance Music from the Hollywood Bar. **10.0,** Extracts from an Opera on Gramophone Records. **11.45,** Chess Lesson. **12 Midnight** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**10.45 a.m.,** Agricultural Report. **11.5,** Sacred Music from the Church of San Domenico. **11.30,** Easter Address. **1.0 p.m.,** Giornale radio. **1.10,** Gramophone Records. In the intervals at **1.55,** Weather Report, and at **2.0,** Time and Announcements. **2.15 to 5.30,** Interval. **5.30,** Variety Music on Gramophone Records. Sports Notes in the interval. **6.30 to 8.0,** Interval. **8.0,** Sports Notes. **8.20,** Giornale radio. **8.25,** Press Review. **8.30,** Time and Announcements. **8.33,** Rigoletto — Opera (Verdi) on Gramophone Records. In the intervals, Miscellaneous Notes and Art Review. After the Opera, News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**5.0 p.m.,** Gramophone Concert of Dance Music. **6.55,** Time and Programme Announcements. **7.0,** Song Recital by Milan Pihler. **7.30,** Kostana—Sketch with Music (Stankovic—Music by Krstic). **10.0** (approx.), News, followed by Light Music from the Ratnicki Dom Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 133.5 kc/s, 1,635 metres; 60 kW.—**11.30 a.m.,** See **Leipzig. 12 Noon,** Friedrich Kaysler reads from Faust (Goethe). **12.30 p.m.,** Programme from **Stuttgart. 2.0,** Talk: Theodor Storm. **2.30,** Harpsichord Recital. **3.0,** Easter Hymns. **3.30,** See **Breslau. 4.0,** Talk: The Osnabrück Easter Play (after the Manuscript in the State Archives of Osnabrück). **4.30,** Nonet for Four String and Five Wind Instruments, Op. 31, by the Chamber Music Society of the State Opera House. **5.0,** Talk: The Resurrection. **5.30,** Holy Year—Programme on Gramophone Records. **6.30,** Reading (Josef Magnus Wehner). **7.0,** Transmission for all German Stations, relayed from **Hamburg. 8.0,** See **Hamburg. 9.0,** See **Turin.** In the intervals at **9.40,** Weather, News, and Sports Notes, and at **10.30,** Weather Report for Shipping.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**11.30 a.m.,** See **Leipzig. 12 Noon,** Military Band Concert from the Busch Circus. **12.30 to 2.0 p.m.,** See **Stuttgart. 2.0,** An Easter Excursion—Modern Variations on an old Theme (arr. Friedrich Hussong). **2.30,** Programme for Children. **3.0,** An Excursion to the Gates of the Town—A Radio Report. **3.30,** Orchestral Concert of German Opera Music, conducted by Eugen Sonntag. **5.45,** An Easter Chronicle—Three Sketches. **6.15,** Max Reger Song and Clarinet Recital by Margarete Klise (Contralto) and Hermann Schrader. **7.0,** Transmission for all German Stations, relayed from **Hamburg. 8.0,** Sports Notes. **8.5,** Concert by the Bernard Dekkers Orchestra. **8.45,** Talk on the following Transmission. **9.0,** See **Turin.** In the intervals at **9.40** and **10.50,** Weather, News, and Sports Notes. **12.45 a.m. (Monday)** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN. See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**12.5 p.m.,** Concert by the Station Orchestra, conducted by Dyk. **1.30,** Agricultural Talk. **2.0,** See **Prague. 2.15 to 2.20,** Tides Report. **4.0,** See **Brno. 5.30,** See **Prague. 5.45,** Recital of Dvorak's Moravian Duets. **6.10,** Cigany Music from the Café Astoria. **7.0,** See **Brno. 7.45,** See **Prague. 8.0,** Variety Concert. **10.0,** See **Prague. 11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.**—**11.30 a.m.,** See **Leipzig. 12.30 to 2.0 p.m.,** See **Stuttgart. 2.0,** News Bulletin. **2.10,** Bethlehem—a Relay by the National Broadcasting Company of New York. **3.30,** Musical Easter Programme for Children by the Station Orchestra and a Children's Choir. **4.0,** Georg Langer reads from his Novel Richter Wichura. **4.30,** See **Stuttgart. 5.0,** Orchestral Concert, conducted by Max Kaden: March (Stahl); Festival Overture (Lortzing); Easter Hymn (Palestrina); Cassation (Mozart); Silesian Overture (Kieslich); Potpourri of German Songs (Schreiner); Concert Aria for Trombone and Orchestra (Pauckert); Eine Sängerfahrt nach Wien (Silving); March, Der alte Fritz (Blon). **6.30,** An Easter Meditation. **7.0,** Transmission for all German Stations, relayed from **Hamburg. 8.0,** See **Berlin (Witzleben). 8.30,** Debtors—a Biblical Play (Georg Rendl). **9.20,** News Bulletin. **9.30,** Concert of Chamber Music: Trio for Violin, Viola and Guitar (Swoboda); Three Movements from the Trio Suite for Violin, Viola and Guitar (Hasenöhrl); Two Dances for Violin, Viola and Guitar (Salmhofer). **10.10,** Time, Weather, News, Sports Notes, and Programme Announcements. **10.40,** See **Stuttgart. 12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**4.0 p.m.,** Popular Orchestral Concert, conducted by B. Bakala. **5.30,** Talk by V. Jerabek: Easter Reminiscences. **5.45,** Light Music on Gramophone Records. **6.0,** German Transmission: Concert of Popular German Songs. **7.0,** Commentary on a Slovak Wedding, relayed from **Kosice, 1,022 kc/s, 293 metres. 7.45,** See **Prague. 8.0,** See **Bratislava. 10.0,** See **Prague. 11.0** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**10.0 a.m.,** Concert by the Small Orchestra. **11.0,** Gramophone Concert. **12 Noon,** Concert conducted by Felleman, relayed from the Grand Hotel, Antwerp. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by Mickey's Club Jazz Attraction. **1.30,** Poems by Victor Hugo and Alfred de Musset on Gramophone Records. **1.40,** Concert (contd.). **2.50,** Running Commentary on the Football Match, Belgium v. Switzerland. **5.0,** Concert by the Radio Orchestra, conducted by Franz André: Military March (Schubert); Potpourri, Achtung—Achtung (Dostal); Scherzando and Finale for 'Cello (Lalo); Selection from Rose Marie (Friml); Waltz for Saxophone and Orchestra (Wieloeft); Ballet Music from Faust (Gounod); Hungarian Dances (Brahms). In the interval at **5.30** (approx.), Football Results. **6.0,** Light Music on Gramophone Records. **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans: Triumphal March (Hartmann); Waltz, Erinnerung an Baden (Komzak); Suite, Fêtes romaines (Fondrain); Selection from Madame Pompadour (Fall); Your Sweet Smile (Ray); Selection from Masearade (Nielsen); Fantasia on Danish Songs (Lanzky). **7.15,** Religious Address. **7.30,** Talk and Music Review. **8.0,** Concert by the Symphony Orchestra, conducted by Meulemans: La jeunesse d'Hercule (Saint-Saëns); Napoli (Charpentier); Song by Mlle. Brulez; España (Chabrier). **8.45,** Poems dedicated to the Moon (de Musset, Baudelaire, de Régnier, d'Houville, Marie Gyers and R. Vivier), by Mlle. Annie Cariel. **9.0,** Concert by the Radio Orchestra, conducted by Franz André. Soloists: René Durand (Tenor), M. Steurs (Accordion), and Mr. Chao-Mei-Pa. **10.0,** Le Journal Parlé. **10.10,** Dance Music, relayed from the St. Sauveur Palais de Danse. **11.30,** Old and Modern Dance Music on Gramophone Records.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**10.0 a.m.,** Classical Music on Gramophone Records. **11.0,** Concert by the Small Station Orchestra. **12 Noon,** Concert by the Mickey's Club Jazz Attraction, conducted by Ludo Langlois. **1.0,** Journal Parlé. **1.10,** Concert, relayed from the Grand Hotel, Antwerp. Conductor: A. Felleman. **5.0,** Dance Music relayed from St. Sauveur Palais de Danse. **5.30** (approx.), Football Match Results. **6.0,** Procession nocturne (Raband) on Gramophone Records. **6.15,** Organ Recital by Louis Joos, relayed from the Carmelite Church. **6.45,** Gramophone Concert of Popular Music. **7.15,** Religious Address. **7.30,** Talk on Music. **8.0,** Concert by the Radio Orchestra, conducted by Franz André. Soloist: Mme. Zelinska (Songs). Overture, The Gipsy Baron (Joh. Strauss); Selection from Comtess Maritza (Kalman); Popular Latvian Songs; Popular Norwegian Dances (Grieg). **8.50,** Programme by Andor Cabor. **9.0,** Concert by the Symphony Orchestra, conducted by M. Meulemans. Soloist: Van Hamberg ('Cello). Overture, The Mastersingers (Wagner); Concerto for 'Cello and Orchestra (Saint-Saëns); Fantasia No. 3 (Benoit-Broeckx); Waltz (Glazunov); Norwegian Dances (Grieg). **10.0,** Journal Parlé. **10.10,** Light Music on Gramophone Records. **10.40,** Concert, relayed from the Meuline Hall, Antwerp. Conductor, Paul Moreaux. **11.40,** Dance Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**10.0 a.m.,** Programme for Workers. **10.30,** Religious Service. **11.15,** Popular Concert. **12 Noon,** Variety Music on Gramophone Records. **1.0 p.m.,** Radio Journal. **1.15,** Popular Music on Gramophone Records. **4.0,** Programme for Peasants. **5.0,** Concert of Romanian Music and Light Music by the Marco Orchestra. **6.0,** Radio Journal. **6.15,** Concert by the Marco Orchestra (contd.). **7.0,** Talks on Agriculture and Zoology. **7.55,** Time Signal. **8.0,** Kiritza—Operetta (Flechtenmacher). In the intervals, Radio Journal. **10.0,** Light Music relayed from a Restaurant.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW.—Also relayed on **840 metres** from **7.30 to 12 Midnight. 8.30 a.m.,** News Bulletin. **9.0,** Protestant Service Relay. **10.0,** Catholic Service Relay. **11.30,** Evangelical Service, followed by Concert by the Opera House Orchestra, conducted by Anton Fleischer: Soloist: Franz Szekelyhidy (Songs); Symphony in G Minor (Mozart); Aria from Don Giovanni (Mozart); Ballet Music from Rosamund (Schubert); Two Arias from Elijah (Mendelssohn); Overture, Ruy Blas (Mendelssohn). **2.0,** Variety Music on Gramophone Records. **3.0,** Agricultural Programme. **3.45,** Educational Programme. **4.30,** News. **4.40** (approx.), Military Band Concert, conducted by Friesay. **5.30,** Humorous Talk. **6.0,** Hungarian Folk Songs by Margarete Bodán, Josef Cselényi and the Béla Rácz Cigány Band. **7.15,** Sports Notes. **7.30,** Easter Holidays—Radio Play (Coolus). **9.30,** Running Commentary on a Boxing Match. **10.0,** News Bulletin. **10.15,** Concert by the Georg Guttenberg Orchestra, the Gyula Horváth Cigány Band and Paul Kalmár, relayed from the Café Ostende. **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**10.0 a.m.,** Divine Service Relay. **11.30,** Weather and News. **12 Noon,** Town Hall Chimes. **12.2 p.m.,** Orchestral Concert, conducted by Emil Reesen: Overture, Norma (Bellini); Ballet Music from Idomeneo (Mozart); Suite, Le Tombeau de Couperin (Ravel); Serenade in C for Strings (Volkmann); Concert Overture, In Autumn (Grieg). **2.0,** Opera Arias on Gramophone Records. **2.30,** Programme for Children. **3.0,** Orchestral and Choral Concert, conducted by Launy Grondahl. **5.0** (also relayed by **Skamlebaek, 31.51 metres**), Divine Service from Christiansborg Castle Church. **6.20,** Talk: Joachim Skovgaard. **6.50,** Weather and News. **7.15,** Time and Sports Notes. **7.45,** Talk on the following Transmission. **8.0,** The Messiah—Oratorio (Handel), relayed from the Cathedral. The Cecilia Society's Choir, the Philharmonic Orchestra, and Soloists. **10.15,** Reading. **10.40,** Pianoforte Sonata in A (Mozart). **11.10** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,237 kc/s, 226 metres; 10 kW.—**12 Noon,** Variety Concert. **12.30 p.m.,** News Bulletin. **12.45,** Variety Concert (contd.). **4.0 to 8.0,** Programme in English by the I.B.C., C. Danvers-Walker, B. McNabb, and F. Lamping announcing. **4.0,** Programme for Children. **4.30,** Concert of Light Orchestral Music. **5.0,** International Club Concert for Bath Listeners; Orchestra: Hungarian Rhapsody, No. 2 (Liszt); Songs: Green Hills of Somerset; Talk by Mr. George White; Widdicombe Fair; Gooseberry Tart; Richard of Taunton Deane; A Fine Old English Gentleman; O Star of Eve; Fly be on the Turmuts; Up from Somerset; There be no flies on we; Wot's ther price o' Swedes; Soft as oi looks; Orchestra: The Wayside Shrine; Rock of Ages. **6.0,** Light Orchestral Music: Overture, Morning, Noon, and Night (Suppé); Air de Ballet (Herbert); Dance of the Clowns (Smetana); Roses from the South (Strauss); Love Everlasting (Friml); Love seuds a little Gift of Roses (Openshaw); Poupée valsante (Poldini); Waltz, Tales from the Vienna Woods (Strauss). **6.30,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: Londonderry Air (arr. Grainger); Songs: (a) She is far from the Land (Moore), (b) Whether (Schubert); Selection from Sunny (Kern); Songs: (a) For you alone (O'Reilly), (b) Maire, my Girl (Aitken); Orchestra: Erstes Waltzer (Robrecht). **7.0,** Orchestral and Vocal Concert: Pale Volga Moon (O'Hagan); Songs:

(a) Horses carry Tails (Redmond), (b) Thompson's old Grey Mule. (c) I'm playing with Fire; Gipsy Moon (Borganov); Songs: (a) Brother, can you spare a Dime? (b) It's winter again (Hoffmann); Try a little Tenderness (Woods). **7.30,** Organ Recital: Sweet Genevieve (Tucker); Song without Words (Tchaikovsky); If you were the only Girl in the World; Selection of Popular Melodies; Mother Machree (Ball); This is Madrid (O'Henry); It happened in Monterey (Wayne). **8.0,** Concert of Orchestral Music. **9.0** till Close Down, Programme in English by the I.B.C. **9.0,** Request Concert: Great Day (Youmans); Daisy Bell; Serenade (Heykens); Goodnight, Sweetheart (Noble); Have a little faith in me (Warren); Wanderer; Dream Lover; Vienna, City of my Dreams (Reeve). **9.30,** Concert of Light Music: Waltz, Sans souci (Von Blon); Soprano Solo: Roses of Picardy (Haydn Woods); Baritone Solo: The Arrow and the Song (Balfe); Loin du Bal (Gillet); Soprano Solo: It is only a Tiny Garden (Haydn Wood); Baritone Solo, Beware of the Maidens (Craske); Quintet: Butterflies in the Rain (Sherman Myers); Barcarolle (Waldteufel). **10.0,** Music by a Tango Orchestra: Marion; Il conto del'attesa; I kiss your little Hand, Madame; Farewell; Mariette; Thrill Me; Little Lady; Mama Inez. **10.30,** Concert of Popular Music: Three Wishes; Let me give my happiness to you; Lover of my Dreams; Play, Fiddle, Play; Butterflies in the Rain; Willow weep for me; Rosa Mia; Old Music Hall Memories. **11.0,** Concert of Light Music: The Devil Dance (Petersen); Vocal Duets: (a) Leave the Pretty Girls alone (Robison), (b) 'Way down in Georgia (Robison); The Wedding of the Birds (Petersen); The Dance of the Raindrops (Reeves); Songs: (a) Let's put out the Lights and go to sleep, (b) How deep is the Ocean? Crazy Pirouette (Frisk). **11.30,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: Selection from The Merry Widow (Lehár); Song, My Old Irish Mother (O'Donnel); Waltz, Très jolie (Waldteufel); Songs: (a) Bright Eyes (Reeves), (b) Marika (Collins); Modern Conception of Russian Melodies (de Fillippi); Songs: (a) Garden Happiness (Haydn Wood), (b) Rose in the Bud (Forster). **12 Midnight,** International Broadcasting Club Concert for Bath Listeners. Orchestra, Hungarian Rhapsody No. 2 (Liszt); Song, Green Hills of Somerset; Talk by Mr. George White; Widdicombe Fair; Gooseberry Tart; Richard of Taunton Doane; A Fine Old English Gentleman; O Star of Eve; Fly be on the Turnuts; Up from Somerset; There be no Flies on we; Wot's ther price o' Swedes? Soft as oi Looks; Orchestra: The Wayside Shrine; Rock of Ages. **1.0 a.m. (Monday),** Banjo Solos: Medley of Popular Airs; Heather Bloom; The Buffoon; The Wedding of the Painted Doll; Vocal Duets: (a) Adeline, (b) Sweeping the Clouds away; Riverside; Selection from Faust (Gounod). **1.30,** Vocal Duets; Old New England Moon; Song: I heard at Mother's Knee; Sing you Sinners; Saxophone Solos: (a) I need you more each day, (b) Valse Marguerite; Dancing with Tears in my Eyes; Happy Feet; If I had a Girl like you. **2.0,** Dance Music by the Ibeolians: The London Fire Brigade; Three's a Crowd; A Bedtime Story; Sweethearts for ever; Let's all sing like the Birdies sing; Pu-leeze Mr. Hemmingway; My Romance; I guess I'll have to change my Plan; Till To-morrow; How deep is the Ocean; Marching along together; Just because you're you; Let's all dance the Polka; You'll always be the same Sweetheart. **2.57,** I.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—10.0 a.m.,** Choral Concert, relayed from the Philippshaus, Marburg. **11.30,** See **Leipzig. 12 Noon,** Talk: Brahms and Frankfurt. **12.30 p.m.,** See **Stuttgart. 1.0,** Concert from **Langenberg. 2.30,** Talk on Bee-keeping. **3.0,** See **Stuttgart. 3.30,** The Easter Frontier-Meeting of the Young Hitlerites. Addresses by Herr Rust and Herr Baldur von Schriach, Leader of the Young Hitlerites. **5.0 to 9.0** (approx.), See **Stuttgart. 9.0** (approx.), See **Turin.** In the interval at **10.10** (approx.), Time, News, Weather and Sports Notes.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse). **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.—11.30 a.m.,** See **Leipzig. 12 Noon** (from **Hanover**), Recital on Two Pianofortes by Gertrud Halsen aud Friederike Halfeld: Sonata in B Flat (Mozart); Turkish March (Beethoven); Waltz (Wilm). **12.30 p.m.,** See **Stuttgart. 1.0,** Time and Weather. **1.5,** Concert by the Hamburg Philharmonic Orchestra and Soloists. **2.0,** Christina's Easter Journey—An Easter Legend (Lo Bergner), with Music by Schmalstich. **3.0,** Recitations and Instrumental Music. **3.45,** Talk: Spring on the Moors. **4.0** (from **Kiel**), Mandoline Concert of Marches and Dances. **4.30,** Wind Instrument Concert. **5.30,** Reading of Patriotic Poems (Walther Heuer). **5.45** (from **Bremen**), Concert of Chamber Music relayed from the Waller-Kirche; Lina Schwarze (Violin), Prof. Kratzi (Flute), Alexander Beck (Cello), Egmont Koch (Baritone), and Käte van Tricht (Organ): Sonata in G for Flute, Violin, and Continuo (Bach); Bist du bei mir (Bach); Trio Sonata in E Flat for Organ (Bach); Adagio in D Minor (Sipruttini); Trio in D (Krebs); Two Arias (Handel): (a) Gewähre, o Herr und Gott from the Dettingen Te Deum, (b) Soll ich auf Manre's Fruchtgefild from Joshua; Finale from the Tenth Organ Concerto in D Minor (Handel). **6.30,** Sports Talk: Rowing for Young People. **6.40,** Sports Results. **6.50,** Weather Report. **7.0** (from **Hanover**), German Easter Festival—An Appeal to all Classes of the Nation. **8.0,** Popular Concert, relayed from the Musikhalle; The Philharmonic Orchestra, conducted by Richard Richter and Soloists: Gertrud Buss (Songs), Ernst Weiher (Pianoforte), and Karl Pündter (Recitations): Overture, Il Seraglio (Mozart); Recitation: Frühling über der Welt (Boettger-Seni); Fourth Pianoforte Concerto in G (Beethoven); Overture, Die Geschöpfe des Prometheus (Beethoven); Songs (Schubert): (a) Der Hirt auf dem Felsen, (b) Auf dem Wasser zu singen, (c) Frühlingsglaube; Symphony No. 8 in G (Haydn). In the interval, News, **10.0,** Time and News. **10.10,** Topical Talk. **10.20,** Orchestral Concert of Light Music.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.—11.30 a.m.,** See **Leipzig. 12 Noon,** Concert Relay. **2.0,** Chess Lesson. **2.30,** Programme for Children. **2.45,** Talk: Easter Customs in East Prussia. **3.20,** Horse-Racing Report. **3.30,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken; Ballet Overture (Kremser); Paraphrases on Two Glinka Songs (Weninger); Waltz (Waldteufel); Oriental Suite (Popy); Selection from Das Fürstenkind (Lehár). In an interval at **4.30,** Programme from **Stuttgart. 5.30,** Humorous Reading (Josef Schloemp). **6.0,** Concert. **7.0,** Transmission for all German Stations, relayed from **Hamburg. 8.0,** Concert of Patriotic Songs and Music, relayed from **Marienburg**: Türmerlied (Rein), for Male Voice Choir and Wind Instruments; Old Easter Choral: Erstanden ist der heil'ge Christ (Prätorius); Talk: Marienburg; O Deutschland (Rein); Address by the Bürgermeister; Deutschland, Deutschland über alles (Haydn); East Mark Song for Verse-Speaking Choir; Feuerspruch (Knab), for Male Voice Choir and Wind Instruments. **8.45,** Introduction to Act I of Aida (Verdi). **9.0,** See **Turin.** In the interval at **9.45,** News Bulletin and Introduction to Act II. At **10.50** (approx.) and **11.45** (approx.), Introduction to Acts III and IV.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—**12.40 to 5.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **12.40,** Time Signal. **12.41,** The Picture (L. J. Jordan). **1.10,** Chimes and Sacred Music relayed from the Cathedral St. Jean, Bois-le-duc. **1.40,** Gramophone Records. **2.40,** Weekly Book Talk. **3.10,** Easter Oratorio (Bach) for Soloists, Choir and Orchestra. Conductor: Anton v.d. Horst. **4.0,** The Bottle Imp—Fairy Tale (Fritz Mack), after the Story by Robert Louis Stevenson. Translation by Henri Eerens. **4.40,** Gramophone Records and Sports Notes. **5.40 to 8.40,** Programme of the Workers' Radio Society (V.A.R.A.). **5.40,** Programme for Children. **6.45,** Concert by the V.A.R.A. Orchestra, conducted by Hugo de Groot. **8.40** till Close Down, A.V.R.O. Programme. **8.40,** Time Signal. **8.41,** News Bulletin. **8.50,** Concerto for Violin and Orchestra (Mendelssohn) by Hugo Kolberg and the Wireless Orchestra, conducted by Albert van Raalte. **9.20,** Recital of Negro Spirituals by Marion Kerby. **9.40,** Concert by a Cossack Choir. **10.0,** Concert by the Wireless Orchestra, conducted by Nico Treep. Soloist: Gitta Alpar (Songs). **10.10,** Negro Spirituals (contd.). **10.40,** Concert of Light Music by Kovacs Lajos and his Orchestra, with Songs by Gitta Alpar. **11.10,** Variety Music on Gramophone Records. **11.25,** Concert of Light Music by Kovacs Lajos and his Orchestra, with Songs by Bob Scholte. **11.55,** Light Music on Gramophone Records. **12.10 a.m. (Monday),** Concert of Light Music (contd.). **12.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

APRIL 16th SUNDAY *continued*

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**12.55 to 5.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). **12.55,** Concert by the K.R.O. Sextet, conducted by P. Lustenhouwer. Prelude (Järnefelt); Solveig's Song (Grieg); Valse romantique (Heinecke); Fantasia, Hungaria (Leopold); A Tango Dream (Maxwell). **1.40,** Talk on Easter. **2.0,** Sextet Concert (contd.). Melody (Bonincontro); Potpourri of Russian Gipsy Melodies (Schirmann); Bin nur ein Jonny (Abraham); Waltz, Flattergeister (Jos. Strauss); Serenata (Tarenghi); Finale. **2.50,** Literary Talk. **3.10,** Concert by the Dutch Vocal Quartet. In an interval at **3.40,** Recitations. **4.30,** Popular Music on Gramophone Records. **4.55,** Choral Concert of Sacred Music, relayed from the Franciscan Church, Heerlen. Soloist: V. Linsen (Organ). **5.40 to 8.25,** Programme of the Christian Radio Society (N.C.R.V.). **5.40,** Sacred Music on Gramophone Records. **6.0,** Divine Service from the Reformed Church, Haren, followed by Organ Recital by R. Blom. **8.25** till Close Down, K.R.O. Programme. **8.25,** Talk. **8.50,** Football Results. **8.55,** Concert by the K.R.O. Orchestra. In an interval at **9.40,** News. **10.0,** Light Music on Gramophone Records. **10.15,** Orchestral Concert (contd.). Von ewiger Liebe (Brahms); Ständchen (Brahms); Mandoline (Chaminade); Four Airs (Dvorák); Selection from The Land of Smiles (Lehár); Overture, Flotte Bursche (Suppé); Potpourri, Von Rhein zur Donau (Rhode). In an interval at **10.55,** News. **11.20,** Epilogue by the Small Choir, conducted by J. H. Pickkers. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide and Concert. **8.15,** Tourist Talk. **8.30,** Radio Concert. **8.50,** News Bulletin. **9.0,** Radio Concert. **10.30 to 11.0** and **12 Midnight to 12.30 a.m. (Monday),** Programme in English by the I.B.C., H. K. Hitchcock announcing. **10.30,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: Pierrette's Wedding (Jordon); Songs: (a) Don Juan's Serenade (Tchaikovsky), (b) Kathleen Mavourneen (Cranford); Play, Fiddle, Play (Lawrence); To-night (Kennedy); Song, To-morrow (Keel); Song, Killarney (Balfe); George Gershwin Medley. **12 Midnight,** Music from Here and There: Song, The Yeoman of England; El Estandarte (Pizzaro); Song of the Volga Boatmen; The Blue Danube (Joh. Strauss); Song, Mexican Serenade (Tereso); Shining Moon; Rakoczy March (Berlioz); Selection, Paris. **12.27 a.m.,** I.B.C. Good-night Melody. **12.30** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**11.30 a.m.,** See **Leipzig. 12 Noon,** Reading: Bees and Flowers (Georg Rendl). **12.30 p.m.,** See **Stuttgart. 1.0,** Concert conducted by Eysoldt: March. Frühlingseinzug (Krings); Overture, Hamlet (Bach); Selection from Die toten Augen (d'Albert); Andante cantabile (Tchaikovsky); Lyric Suite (Grieg); The Arrival of the Black Swans (Wagner); Ständchen (R. Strauss); Waltz, Wiener Bürger (Ziehrer); Potpourri, From Gluck to Wagner (Schreiner). **2.40,** Talk: Easter in Sardinia. **3.10,** Two Easter Tales (Gottfried Kölwel). **3.30,** See **Breslau. 4.0,** The World on Gramophone Records—Clogs. **4.30,** Military Band Concert from the Freischütz in the Schwerterwald. **6.0,** Introduction to the following transmission. **6.15,** First Act of Parsifal—Opera (Wagner) from the Opera House, Cologne. **8.0,** Sports Notes. **8.10,** Introduction to the following transmission. **8.25,** Second Act of Parsifal. **9.35,** Reading: Parsifals Kampf mit Orlius (Albrecht Schaeffer). **9.45,** Introduction to the following transmission. **9.54,** Third Act of Parsifal. **11.0,** News and Sports Notes. **11.20,** Programme on the Centenary of the Birth of Dr. Karl Benz—Dialogues with Motorists of all Nationalities (on Gramophone Records). **11.45,** Serenade on Gramophone Records. **12 Midnight** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—11.30 to 11.50 a.m.,** I know that my Redeemer liveth—Cantata (Bach), by the Municipal and Gewandhaus Orchestra, the Choir of St. Thomas' and Soloists. **12 Noon,** String Quartet in E Flat, Op. 74 (Beethoven). **12.30 to 2.0 p.m.,** Programme from **Stuttgart. 2.0,** Weather and Time. **2.5,** Talk: The Week's Programme. **2.15,** Radio Report of the Guides Meeting from the Leuchtenberg, Kahla. **3.30,** Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber. **4.0,** Recital of Spring Songs. **4.30,** Concert, conducted by Hilmar Weber. **5.30,** Käthchen von Heilbronn—Play (Heinrich von Kleist), Music by Alexander Scheffler. **7.0,** Transmission for all German Stations, relayed from **Hamburg. 8.0,** Concert by the Vena Male Voice Choir and the Leipzig Symphony Orchestra. **8.30,** Topical Review. **9.0** (approx.), See **Turin.** In the intervals at **9.40** and **10.50** (approx.), News, and at **11.45,** Reading from Verdi's Letters. **12.45 a.m.** (Monday), Close Down.

LINZ.—See **Vienna.**

MADRID

ARANJUEZ, EAQ, 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** Concert of Light Music. In the interval at **11.45,** Humorous Talk. **12.35 a.m. (Monday),** Talk. **12.40,** Variety Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**9.0 to 10.0 a.m.,** Topical Review. **12.30 p.m.,** Concert by the Madrid Municipal Band, conducted by M. Villa. **3.0,** Chimes, Time Signal, Theatre Notes, and Concert by the Artys Orchestra. **5.0 to 8.0,** Interval. **8.0,** Chimes, Radio Journal, and Dance Music, relayed from the Ritz Hotel. **9.30 to 10.30,** Interval. **10.30,** Chimes and Time Signal. **10.35** (approx.), Variety Programme: Pianoforte Solos by Teresa Alonso Posada: (a) Sonata in B Flat (Serrano), (b) Sonata in D (Soler), (c) Minstrels (Debussy), (d) Etude in Waltz Time (Saint-Saëns), (e) Cubana (Falla), (f) El pelele (Granados); Interlude by Ramon Gomez de la Serna; Flamenco Songs; Dance Music. **1.0 a.m. (Monday),** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,367 kc/s, 263.8 metres; 11 kW.—**7.0 p.m.,** See **Brno. 7.45,** See **Prague. 8.0,** See **Bratislava. 10.0,** See **Prague. 11.0** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**6.30 p.m.,** Dance Music or Concert from the Radio Theatre or Conservatoire. **8.0,** A Literary Programme in German. **9.0,** Talk in English. **9.30,** Programme Announcements. **9.55,** Announcements. **10.5,** Talk in Swedish: Trade Agreements in the Soviet Union.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.—10.0 a.m.,** Catholic Service. **10.45,** Chimes from Our Lady's Church. **11.0,** The Poetry of Spring and Eastertide—Readings from Goethe, Eichendorff, Trakl, Dauthendey, Mörike, Lenau, Delmel, and Others. **11.30,** See **Leipzig. 11.50,** Orchestral Concert. **12.30 p.m.,** See **Stuttgart. 1.5,** Time, Weather and Programme Announcements. **1.15,** Gramophone Concert of Classical Music. **2.20,** Talk: Among the Peasant Farmers of Westrich in the Palatinate. **2.40** (from **Nürnberg**). Easter Programme by the Schwarz Orchestra, the Nürnberg Male Quartet, a Children's Choir and Soloists. **3.40,** Stories of Easter Week—St. John in Franconia. **4.0,** Wind Instrument Concert. **5.35,** Talk: Wagner's Opera, Rienzi. **5.55,** Introductory Talk to the following Transmission. **6.5,** Tannhäuser—Opera in Three Acts (Wagner), relayed from the National Theatre. In the interval at **7.5,** Weather and Sports Notes. **10.0,** Talk on South-West Africa. **10.20,** Time, Weather, News and Sports Notes. **11.45,** Serenade, conducted by Erich Kloss. **12 Midnight** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.—10.0 a.m.,** Chimes from the Sandeford Church. **10.2,** Divine Service and Chimes, relayed from St. Saviour's Church. **3.45 p.m.,** Variety Music on Gramophone Records. **5.50,** Chimes and Divine Service from St. Saviour's Church. **7.15,** Weather and News. **7.20,** M. Theodor Caspari reads from his own Works. **8.0,** Time Signal. **8.1,** Concert by the Station Orchestra, conducted by Hugo Kramm: Choral and Overture from the St. John Passion (Bach); Easter Hymn (Ottar Eggen); Overture, Parsifal (Wagner); An den Frühling (Grieg); Herzwunden (Grieg); Meditation from Thais (Massenet); Overture, St. Paul (Mendelssohn); Andante religioso (Thomé); Händel Potpourri (Urbach); Niederländisches Dankgebet (Valerius). **9.10,** Talk: Africa, from a Woman's Point of View. **9.40,** Weather and News. **9.45,** Topical Talk. **10.0,** Concert by the Station Orchestra: Piece (Nordraak); Resignation (Neupert); In the Country (Halvorsen); Evening on the Mountains

(Beidarson); Summer Song (Backer-Grönd:hl); Selection from The Peer Gynt Suite (Grieg). 11.0 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

553 kc/s, 537.6 metres; 3 kW.—**10.25 a.m.,** Bible Reading. **10.40,** Sacred Music. **11.5,** Talk. **12.45 p.m.,** Giornale Radio. **1.0,** Concert by the Sunny Band Quartet. **1.30** (in an interval), Time Signal. Announcements, and Weather Forecast. **5.30 to 6.30,** Popular Music on Gramophone Records. **8.0,** Dopolavoro Announcements and Giornale Radio. **8.20,** Sports Notes. **8.25,** Light Music on Gramophone Records. **8.30** (in an interval), Time Signal and Announcements. **8.45,** Symphony Concert, conducted by A. La Rosa Parodi: Concerto grosso for Strings and Pianoforte (Bloch); Symphonic Poem, La Chimera (Parelli); Overture, La donna serpente (Casella); Symphony No. 1 in C Minor (Brahms). In the interval, Talk. **10.0,** Song Recital. **10.55,** News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,435.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals),—**1.0 p.m.,** News Bulletin. **1.15,** Weather Report. **1.30 to 2.30,** Concert by the Radio Orchestra, conducted by Jean Ibos: Waltz, Roses from the South (Joh. Strauss); Russian Patrol (Stone); La Fille aux cheveux de lin (Debussy); Granada (Albéniz); Selection from Rigoletto (Verdi); Valse triste (Sibelius); Rustle of Spring (Sinding); Ballet Music from Coppélia (Delibes). **6.45,** Le Journal Parlé. **7.45,** Programme for Children. **8.20,** Weather Report. **8.30,** Gramophone Concert of Popular Music. **10.0** (approx), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**9.15 a.m.,** Bible Reading. **10.0,** News. **10.5,** Sponsored Concerts. **11.40,** Gramophone Concert of Light Music. **12.15 p.m.,** Extracts from Sound Films—Sponsored Programme. **12.45,** Sponsored Talk. **12.50,** Half-an-Hour of Fantasy by Paul Weill. **1.20,** Interval. **1.30,** Sponsored Programme. **2.0 to 6.45,** Interval. **6.45,** Journal Parlé. **7.0,** Sports Notes. **7.15,** Light Music on Gramophone Records. **7.30,** Catholic Review. **8.0,** Interval. **8.15,** Popular Music on Gramophone Records. **8.45,** Interval. **9.0,** Tempête sur les côtes—Sketch (Birabeau). **9.30,** Songs by the Trio Marvel. **9.50,** Concert by the Station Orchestra. **10.50,** News.

APRIL 16th SUNDAY *continued*

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**7.45 a.m.,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **8.30,** Physical Culture. **11.30 to 12 Noon,** Programme in English by the I.B.C.: Concert of Light Music on Gramophone Records, Mr. T. St. A. Ronald announcing. **12 Noon,** Religious Address. **12.20 p.m.,** Sacred Music: Cantate Domino (Alain); Ave Maria (Arcadelt); Credo (Gretchaninov). **12.30,** Billoquet at the Cirens. **12.45,** Press Review, News, and Weather. **1.0,** Light Music on Gramophone Records. **3.0 to 3.30,** Programme in English by the I.B.C.: Orchestral Concert: Entry March of the Gladiators (Fucik); Selection from The Pirates of Penzance (Sullivan); Selection from The Dollar Princess (Fall); Selection from Miss Hook of Holland (Rubens). **3.30,** Gramophone Concert: In a Monastery Garden (Ketelbey); Symphonic Poem, Phaëton (Saint-Saëns); Ballad from Romeo and Juliet (Gounod); Habanera (Sarasate); Entr'acte from Manon Lescaut (Puccini). **4.0 to 5.0,** Programme in English by the I.B.C. Teatime Variety Hour. Mr. S. H. C. Williams announcing. **5.0,** Gramophone Concert. **7.0,** Concert of Light Music. **8.0,** Light Music on Gramophone Records. **9.0,** See **Turin.**

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**10.0 p.m.,** Dick Daring, from **New York.** **10.15,** Temple of Song, from **New York.** **10.30,** Vesper Services from Shadyside Presbyterian Church. **11.30,** Pages of Romance, from **New York.** **12.0 Midnight,** Sealed Power, from **New York.** **12.30 a.m. (Monday),** Time Signal. **12.31,** Weather Report. **12.32,** Teaberry Sport Review. **12.37,** Press News Reeler. **12.44,** Temperature Report. **12.45,** Programme to be announced. **1.0,** Time Signal and Smith Ballew and his Orchestra. **1.30 to 4.45, New York** Relay. **1.30,** Great Moments in History. **2.0,** The Land where the Good Songs go. **3.0,** Twenty Thousand Years in Sing Sing. **3.30,** Walter Winchell. **3.45,** Pickens Sisters. **4.0,** D. W. Griffith's Hollywood. **4.15,** Lopez and the two Doctors' Comic Congress. **4.45,** Don Lucas —Pianoforte Opera. **5.0,** Time Signal. **5.1,** Teaberry Sport Review. **5.11,** Temperature Report. **5.12,** Weather Report. **5.15,** Press Last Minute News. **5.20,** Alexander Roy (Tenor). **5.30,** Jesse Crawford (Organist), from **New York.** **6.0,** Time Signal and Goodnight.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**11.25 a.m.,** Concert by the Station Orchestra, conducted by Otakar Jeremias. Symphonic Poem from the Cycle My Country (Smetana); Scherzo capriccioso, Op. 66 (Dvorák); Polish Fantasia, Op. 5 (Suk-Thiele). **12 Noon,** Chimes. **12.5 p.m.,** See **Bratislava.** **2.0,** Agricultural Report. **2.15 to 2.25,** Announcements. **4.0,** See **Brno.** **5.30,** Talk. **5.45,** Light Music on Gramophone Records. **6.0,** German Transmission. Wake up! Easter is here—Radio Sequence of Easter and Spring Songs, arranged by Dr. Franz Longin, with Commentary. **7.0,** Chimes. **7.1,** See **Brno.** **7.45,** Easter Reading. **8.0,** See **Bratislava.** **9.0** (in the interval), Time Signal. **10.0,** Time and News. **10.20,** Czech Jazz Compositions on Two Pianofortes. **11.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.**—**9.55 a.m.,** Chimes. **10.0** (from **Geneva**), Protestant Service from St. Peter's Cathedral. **11.0** (from **Geneva**), Gramophone Concert of Light Music. **12.0 Noon** (from **Geneva**), Reading. **12.30 p.m.,** News. **12.40** (from **Geneva**), Light Music on Gramophone Records. **3.30,** Choral Concert, relayed from the Maison du Peuple, La Chaux-de-Fonds. In the interval, Chopin Pianoforte Recital. **6.30,** Religious Address. **7.0** (from **Geneva**), Organ Recital by William Montillet. **7.30** (from **Geneva**), Variety Music on Gramophone Records. **7.40** (from **Lausanne**), Sports Notes, News, and Announcements. **8.0** (from **Geneva**), Talk. **8.15** (from **Geneva**), Concert by the Geneva Motet. **8.45,** Concert by the Radio-Suisse Romande Orchestra. **10.0,** News and Weather Report. **10.15** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.**—**10.10 a.m.,** Sports Notes and Amusement Guide. **10.30,** Agricultural Report. **10.45,** Bible Reading. **11.0 to 2.30 p.m.,** See **Turin.** In the interval at **1.0,** Time and Announcements. **3.45** (**Naples**), Programme for Children, Weather, and Sports Notes. **4.0,** Orchestral Concert. **4.45,** Sports Notes. **5.0,** Symphony Concert, conducted by Bernardino Molinari, relayed from the Augusteo. Sports Notes in the interval. **7.30,** Sports Notes and News. **8.0** (approx.), Time and Announcements. **8.30,** Sports Report. **8.45,** The Toreador—Operetta in Three Acts (Caryll and Monckton). In the intervals, Reading and Talk on Science. News after the Operetta.

SALZBURG.—See **Vienna.**

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**6.30 p.m.** (from **Basle**), Reading in English: Foreign Easters (Rosita Forbes). **7.0,** Time, Weather and Sports Notes. **7.15** (from **Basle**), Easter Reflections by Emil Joos. **7.45** (from **Zürich**), Concert of Eastern Music by the Radio Orchestra. **8.0** (from **Basle**). The Post Office—Play (Rabindrath Tagore). **9.0** (from **Basle**), Recital of Children's Songs and Bergerettes, by Irma Schloss (Soprano). **9.30,** Weather and News. **9.40** (from **Basle**), Songs of Love and Happiness, sung by the Edelweiss Vocal Quartet. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**11.0 a.m.,** Divine Service Relay. **12.45 p.m.,** Weather. **2.30,** Symphony Concert, conducted by Václav Talich; Overtura Solenne (Rangström); Suite, Bukolika, Op. 27, for Strings (Eriksson); Symphony No. 6—the Pathetic (Tchaikovsky). **4.10,** Programme for Children. **4.45,** Popular Music on Gramophone Records. **5.30,** Reading. **6.0,** Evensong from St. Peter's Church. **7.15,** Weather and News. **7.25,** Folk Music by the Septiman String Ensemble. **7.50,** Pianoforte Recital by Anita Harrison: Sonata in C (Scar-

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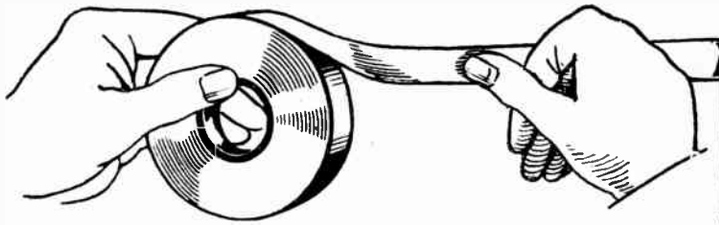

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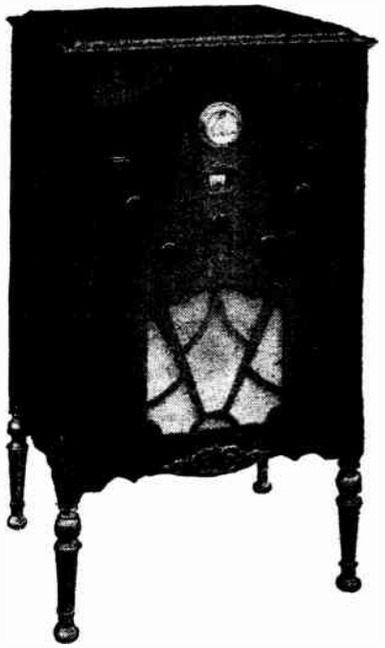

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APRIL 16th SUNDAY continued

latti); Sonata in G Minor (Scarlatti); Intermezzo in E Flat Minor, Op. 118, No. 6 (Brahms); Capriccio in B Minor, Op. 76, No. 2 (Brahms); Pastorale (Poulenc); Etude in E, Op. 8, No. 5 (Scriabin); Etude in D Sharp Minor, Op. 8, No. 12 (Scriabin). **8.15,** Alcestis—Drama (Euripides), translated by Hjalmar Gullberg. **9.45,** Weather. **9.50,** Orchestral Concert of Light Music. **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**9.30 a.m.,** Chimes and Easter Service, relayed from the Cathedral. **10.45,** Protestant Service in German. **11.30,** Catholic Service. **12 Noon,** Variety Music on Gramophone Records. **12.45 p.m.,** News. **1.0,** Time, and Light Music on Gramophone Records. **2.0,** Zoological Talk in German. **2.15,** Dance Music on Gramophone Records. **3.15 to 4.0,** Interval. **4.0,** Light Music on Gramophone Records. **5.0,** Dance Music by the Station Orchestra, conducted by Roskam. **6.0,** Medical Talk. **6.15,** Sports Talk. **6.30,** Orchestral Concert, conducted by de Villars: Overture, Le Lac des Fées (Auber); Waltz, from Das Fürstenkind (Lehár); Selection from Rigoletto (Verdi); Ballet Music from Les Fantoccini (Lecocq); Selection from Paganini (Lehár). **7.30,** Time and News. **7.45,** Press Review in German, Lottery Results, and Announcements. **8.0,** Dramatic Programme: La Vocation des Teniers—Play in Verse, in One Act (Valdelièvre), followed by Monologue—Play in One Act (Maivil). **9.30,** Press Review in French. **9.35** (approx.), Concert, relayed from the Café Moll, Mulhouse: Overture, Oberon (Weber); Waltz, Souviens toi (Waldteufel); Selection from Le Petit Duc (Lecocq); Suite, Pantomime (Lacôme); Gavotte tendre (Hillemacher); 'Cello Solo, Malaguena (Albeniz); Selection from The Gipsy Princess (Kálmán). **10.30,** Dance Music from the Savoy Dance Hall. **12 Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**10.40 a.m.,** Evangelical Morning Recital. **11.30,** See **Leipzig.** **11.50,** Organ Recital Recital by Hans Vogel, relayed from a Church in Karlsruhe: Prelude in D (Bach); Largo in F Sharp (Haydn); Was Gott tut, das ist wohlgetan (Kellner); Romance in A Flat (Merkel); Fugue in G Minor (Bach). **12.30 p.m.,** Relay of the Unveiling Ceremony of the Karl Benz Memorial from the Augusta Grounds, Mannheim; Addresses by Adolf Hitler, Duke Adolf Friedrich of Mecklenburg, Dr. Allmers, Ewald Kroth, and Willy Vogel. **1.0** (from **Mannheim**), Police Band Concert. **2.0,** Gramophone Concert of Popular Music. **3.0,** Peter and Lau—a Sketch (Bert Weiszbrem). **3.30,** A Fairy Play for Children. **4.30** (from **Mannheim**), A Discussion between Motorists of different Countries. **5.0,** Orchestral Concert, relayed from **Baden-Baden.** **6.0,** Um den Hastentag—a Swabian Easter Programme by Else Gittinger, Walter Schwarz, Carl Ebert (Recitations), and Margarete Wetter (Soprano). **6.30,** Marienlied, Op. 52b, for Voice and String Quartet (Zilcher). **7.0,** Transmission for all German Stations, relayed from **Hamburg.** **8.0,** Concert by the Stuttgart Philharmonic Orchestra. **9.15,** An Ocean Flight, East to West—Dialogue between Captain Köhl and Major Ruff on the Fifth Anniversary of the first Trans-Atlantic Flight. **9.45,** Sonata in D Minor, Op. 108, for Pianoforte and Violin (Brahms) by Hubert Giesen and Catharina Bosch-Möckel. **10.10,** Time, News, Weather, Programme Announcements, and Sports Notes. **10.40,** Concert of South German Folk Music. **12 Midnight,** Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**12.15 p.m.,** News and Exchange. **12.30,** Catholic Service. **1.0,** Entertainment Guide and Market Prices. **1.5,** Music by a Symphony Orchestra: In a Chinese Temple Garden (Ketelbey); Spring Song (Mendelssohn); Air from A Waltz Dream (Oscar Straus); Solera Fina (Marquina). **1.15,** Opera Music. **1.30,** Violin Solos. **1.45,** Protestant Service. **2.15,** News. **2.20,** Music by a Symphony Orchestra. **2.45,** Agricultural Report. **3.0,** Chansonnettes. **3.15,** News and Racing Results. **3.20,** Concert by a Viennese Orchestra. **3.45,** Operetta Music. **4.15,** News. **4.20,** Military Music, followed by Dance Music. **5.0,** Light Music. **5.15,** News and Racing Results. **5.20,** Hawaiian Guitar Music. **5.30,** Opera Music: Scene from Faust (Gounod); Duet from I Pagliacci (Leoncavallo). **5.45,** 'Cello Solos. **6.0,** News. **6.15,** Operetta Music: Selection from (a) Die Bayadère (Kálmán), (b) Les Noces de Jeannette (Massé). **6.30 to 7.0,** Programme in English by the I.B.C., W. Brown Constable announcing. **6.30,** Henly Concert of Dance Music: A Waltz, a Night, a Tune; In Santa Lucia; The Girl in the Little Green Hat; Try a little Tenderness; I'll never have to dream again; A Letter to my Mother; Roll along Kentucky Moon; My Darling; Jolly Old Ma, jolly Old Pa. **7.0,** Music by an Argentine Orchestra. **7.15,** News and Racing Results. **7.25,** Local News Bulletin. **7.30,** Chansonnettes. **7.45,** Accordion Music. **8.0,** Hunting Horn Music. **8.15,** Opera Music; Arias from (a) Carmen (Bizet), (b) Manon (Massenet), (c) Thérèse (Massenet). **8.30,** Ensemble Music. **8.45,** Opera Music; Melodies from (a) The Prophet (Meyerbeer), (b) William Tell (Rossini), (c) Hamlet (Thomas). **9.0,** Extracts from the Chemin du Paradis—Sound Film (Heymann). **9.20,** Music by a Viennese Orchestra. **9.30,** Balalaika Music and Russian Songs. **9.45,** Orchestral Music followed by Chansonnettes. **10.15,** North African News. **10.30 to 12.0 Midnight:** I.B.C. Programme in English by the I.B.C. **10.30,** Fulford Variety Half Hour; Jolly Good Company; My Old Dutch; Down the Lane to Home Sweet Home; Angels Guard Thee—Berceuse de Jocelyn; Medley, Memories by the Fireside; Danny Boy; Around the Corner; Goodbye. **11.0,** Concert of Light Music by the I.B.C. (Ireland) Ltd.: Accordion Duet, Gold and Silver (Lehár); Song, The Bard of Armagh; Selection from The King of Jazz; Accordion Duet; Poppies (Moret); Selection from The Desert Song (Romberg); Pianoforte Solos of Popular Music. **11.30,** Dance Music: There's Something about a Soldier; Can't we meet again; Have you ever been lonely?; Live is the sweetest thing; Paradise; Mad about the Boy; Round the Bend of the Road; The Younger Generation. **11.57,** I.B.C. Goodnight Melody. **12.0 Midnight,** News, Weather Forecast, and Announcements. **12.5 a.m. (Monday),** Sound Film Music. **2.15,** Accordion Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**9.40 a.m.,** See **Turin.** **9.55,** Mass from the Cathedral of San Giusto. **11.0,** Religious Address. **11.20 to 11.40,** Agricultural Talk. **12.30 p.m.** (approx.) till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 965 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**9.40 to 9.55 a.m.,** Giornale Radio. **10.40,** Agricultural Talk. **11.0,** Mass from the Church of the Annunciation, Florence. **12 Noon to 12.15 p.m.,** Bible Reading. **12.30,** Orchestral Concert. In the interval at **1.0,** Time and Announcements. **1.30 to 2.30,** Orchestral Concert, conducted by Ugo Tansini. **4.0,** Gramophone Records with Sports Notes. Sports Notes in the interval. **5.0,** See **Rome.** In the intervals and after the Programme, Sports Notes. **7.0,** Time and Dopolavoro Notes. **7.10,** Light Music on Gramophone Records. **8.0,** Giornale Radio, Sports Notes. **8.20,** Talk on the following transmission. **9.0,** Aïda—Opera in Four Acts (Verdi), relayed from the Scala, Milan. In the intervals, Theatre Notes and Giornale Radio.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—**9.20 a.m.,** Pontifical High Mass from St. Stephen's Cathedral. **10.30,** Reading. **10.50,** Talk: Easter in Holy Year. **11.20,** Concert by the Vienna Symphony Orchestra, conducted by Anton Konrath: Concerto grosso in D Minor, No. 10 (Handel); The Unfinished Symphony (Schubert); Symphonic Poem, Don Juan, Op. 20 (R. Strauss). **12.30 to 2.0 p.m.,** Orchestral Concert. **3.0,** Time and Programme Announcements. **3.5,** Reading of German Legends. **3.30,** Chamber Concert of Haydn's Music: String Quartet in D, Op. 17, No. 6; String Quartet in E flat, Op. 71, No. 3. **4.25,** Talk; Dances in Andalusia, with Illustrations on Gramophone Records. **5.0,** Wind Instrument Concert. **6.20,** Jakob Schallner reads from his own Works. **6.50,** Time, Sports Notes and Programme Announcements. **7.0,** Tobias Wunderlich—Dramatic Legend (Hermann Heinz Ortner) **9.0,** see **Turin.**

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal, and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10 to 3.0,** Interval. **3.0,** Popular Orchestral Concert. **4.0,** Programme for Children. **4.25,** Light Music on Gramophone Records. **4.45,** Talk. **5.0,** Pianoforte Recital by B. Kon. **5.55,** Programme Announcements. **6.0,** Light Music on Gramophone Records. In the interval, News. **7.10,** Feuilleton. **7.25 to 12 Midnight,** Programme relayed from **Lwow (788 kc/s, 381 metres).** **7.25,** Humorous Programme. **8.0,** Programme to be Announced. **9.0,** Song and Violin Recital by Mme. Downar-Zapolska (Soprano) and M. Czapinski (Violin). **10.15,** Concert of Light Music. **12 Midnight** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender**

MONDAY

APRIL THE SEVENTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	"Chu Chin Chow," a musical tale of the East. Verdi Orchestral concert.
LONDON REGIONAL	Choral and instrumental programme.
MIDLAND REGIONAL	"The Holiday," Orchestral concert.
NORTH REGIONAL	Folk songs of the North—Durham.
WEST REGIONAL	Variety concert from Bath.
BELFAST	Band programme.

ABROAD

HAMBURG	8 p.m. Operetta: "The Bird Fancier" (Zeller), from the Municipal Theatre, Schwerin.
HUIZEN	2.10 p.m. Commemoration of the fourth centenary of the birth of William of Orange. 8.10 p.m. Concert by the Con Amore Oratorio Society.
KONIGSWUSTERHAUSEN	6 p.m. First act of "Parsifal" (Wagner), from the Municipal Opera House, Charlottenberg.
MUNICH	9 p.m. Paul Graener concert, conducted by the composer.
PRAGUE	7.30 p.m. Musical play: "Godfather Death" (Karel), from the National Theatre.
ROME	5.30 p.m. Concert from the Royal Philharmonic Academy.
SOTTENS	9.20 p.m. The Russian Isba Balalaika Orchestra.
STOCKHOLM	8 p.m. Operetta: "Countess Maritza," by Kalman.
TURIN	9 p.m. Recital by Mafalda Favero (Soprano), and Antonio Melandrio (tenor) (relayed by **Florence, Genoa, Milan, and Trieste**).
WARSAW	8 p.m. Operetta: "Dolly," by Hirsch.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.**—**6.0 p.m.**, Popular Concert on Gramophone Records. **7.0**, Recitations of Poems by Padroic Pearse. **7.20**, News Bulletin. **7.30**, Pipe and Fiddle Duets. **7.40**, Recital of Irish Songs. **7.50**, The Station Orchestra. **8.10**, Song Recital by D. MacCoilligh. **8.30**, Pipe and Fiddle Music. **8.45**, Orchestral Music. **9.0**, Recital of Songs in Gaelic and English. **9.20**, Harp Solos by Annie Fagan. **9.35**, Irish Songs by M. Ni Bheaglaoich. **9.45**, The Singer—Play (Padraic Pearse). **10.20**, Orchestral Music. **10.30**, Time Signal, News, Weather Report and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.**, Trio Concert. **7.30**, Quintet Concert, relayed from the Café de la Rambla. **8.30**, Sports Notes, Exchange Quotations and Talk in Catalan. **9.0**, Light Music on Gramophone Records and News Bulletin. **10.0**, Chimes from the Cathedral, Weather Forecast, Exchange and Market Prices. **10.5**, Humorous Review of the Week in Verse. **10.15**, Concert of Sardanas. **11.0**, Concert by the Station Orchestra: Hungarian Dances No. 7 (Brahms); Ständchen (Schubert); Procession of the Grail from Parsifal (Wagner); Overture, Semiramis (Rossini). **11.30**, Concert by a Mandoline Orchestra. **12 Midnight** (in an interval), News. **12.30 a.m. (Tuesday)**, Light Music on Gramophone Records. **1.0** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.**, Agricultural Report, Tourist Talk and Announcements. **8.20**, Giornale Radio and Press Review. **8.30**, Time and Announcements. **8.35**, Tosca—Opera (Puccini), on Gramophone Records. In the intervals, Talk and Notes on Art. News after the Opera.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**11.30 a.m.**, See **Leipzig. 12 Noon**, See **Heilsberg. 2.0 p.m.**, Programme for Children. **2.30**, Story of the Resurrection of Jesus Christ (Heinrich Schütz). **3.30**, Programme for Young People—Tales of Travel and Adventure in Africa. **4.0**, Improvisations on the Wurlitz Organ by Hans Georg Görner, relayed from Herr von Siemen's House. **4.30**, Talk: Three Thousand Years of German History. **5.0**, Brahms Recital by Ida Harth zur Nieden (Songs) and Mimi zur Nieden (Pianoforte): Ballad in G Minor, Op. 118; Folk Songs: (a) Mädchenlied, (b) Die Sonne scheint nicht mehr, (c) Schwesterlein, (d) Sandmännchen; Intermezzo in E Flat Minor, Op. 118. **5.30**, Talk on the following Transmission. **6.0**, First Act of Parsifal—Opera (Wagner), from the Municipal Opera House, Charlottenberg. **8.0** to **8.15**, Interval. **8.15**, E. G. Kolbenheyer reads from his Own Works. **8.45**, Programme from Vienna. **9.30**, Political Press Review. **10.0**, Weather, News and Sports Notes. **10.45**, Weather Report for Shipping. **11.0**, Programme from **Munich. 12 Midnight**, Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**11.30 a.m.**, See **Leipzig. 12 Noon**, Concert by the Berlin Philharmonic Orchestra, conducted by Dr. Rudolf von Schmidtseck, relayed from the Ufa Palace: Forest Murmurs from Siegfried (Wagner); Overture, Rienzi (Wagner); Symphonic Poem, Les Préludes (Liszt); First Hungarian Rhapsody (Liszt). **1.0 p.m.**, Part Relay of a Concert by Children, from **Heilsberg. 1.20**, Gramophone Records of Variety Music. **2.0**, A Child Learns to Speak—Programme with Gramophone Record Illustrations. **2.30 to 3.20**, Programme for Young People. **3.30**, Concert by the Wind Symphony Orchestra, conducted by Walter Winnig: Military March (R. Strauss); Overture, Undine (Lortzing); Waltz, Aquarellen (Jos. Strauss); Kesseldorfer Marsch (Army March); Two German Dances (Mozart): (a) Der Kanarienvogel, (b) Die Schlittenfahrt March, Brucker Lager (Kral); Selection from Rigoletto (Verdi); March, Unser Hindenburg (Winnig). **4.30**, Sacred Concert from a Church in Nikolskoe. **5.0**, Wind Instrument Concert (contd.): Alsatian Peasant Dances (Merkling). **5.5**, Radio Report from the Karlshorst Race Course. **5.25**, Concert (contd.): Selection from Der Obersteiger (Zeller). **5.35**, Radio Report of the Last Fifteen Minutes' Play of a Rugby Football Match from the S.C.C. Stadium. **6.0**, Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0**, Sports Notes. **8.5**, Concert by the Berlin Wireless Orchestra, conducted by Bruno Seidler-Winkler: Soloists: Johannes Strauss (Pianoforte) and Ly Betzou (Soprano); Spring Overture, Op. 15; Soprano Solo from The Taming of the Shrew (Hermann Goetz); Italian Serenade (Hugo Wolf); Pianoforte Solo, Fantasia, Op. 15, on Der Wanderer (Schubert-Liszt); Three Symphonic Dances (C. A. Franz); Overture, Der Bärenhäuter (Siegfried Wagner); Soprano Solos: (a) Der Waldsee, Op. 34 (Wilhelm Berger), (b) Liebesfeier, Op. 16 (Felix Weingartner); Scherzo Caprice, Op. 5 (Nedbal); Letter Scene from Eugene Onegin (Tchaikovsky); Polovtsian Dances (Borodin). **10.0**, A Report on International Affairs. **10.30**, Weather, News, and Sports Notes, followed by Dance Music. **12 Midnight**, Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**4.0 p.m.**, Concert by the Station Orchestra, conducted by F. Dyk. Soloist: Rudolf Bil (Violin): Concert Overture, The Hebrides (Mendelssohn); Concerto in A for Violin with Orchestral Accompaniment (Mozart); Czech Suite, Op. 39 (Dvorak): Selection from The Bartered Bride (Smetana-Kovarovic). **5.30**, See **Prague. 5.45**, Light Music on Gramophone Records. **6.0**, Talk on Astronomy. **6.10**, Recital of Old Italian Arias by G. Filipkova: Arietta (Scarlatti); Aria (Caldara); Aria (Marcello); Aria from Eurydice (Peri); Canzone (Lotti); Aria (Pergolesi); La Modinara (Paisiello). **6.35**, Light Music on Gramophone Records. **7.0**, See **Brno. 7.25**, See **Prague. 10.15**, Concert relayed from the Museum Café. **11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.**—**10.0 a.m.**, Catholic Service. **11.0**, Reading (Moerlier van den Bruck). **11.30**, See **Leipzig. 12 Noon**, See **Heilsberg. 2.0 p.m.**, News Bulletin. **2.10**, Talk on Bosnia. **3.0**, Talk: The Polish Army. **3.30**, Peter Dörfler reads from his own Works. **4.0**, Military Band Concert: Helmuth Brückner-Marsch (Hinze); Argonne March (Männecke); Overture, Der Wildschütz (Lortzing); The Tin Soldiers (Koekert); Selection from Die Puppenfee (Bayer); March (Zinnecker); Badonviller-Marsch (Fürst); Waltz, O Frühling, wie bist du so schön (Lincke); Potpourri of Soldiers' Songs, Vaterlandsklänge (Pagel); March from Der fliegende Rittmeister (Dostal); March, Unsere Marine (Thiele). **5.30**, Sports Report. **6.0**, Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0**, See **Frankfurt. 10.15**, Time, Weather, News, Sports Notes and Programme Announcements. **10.35**, Dance Music from **Berlin (Witzleben). 12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**5.30 p.m.**, Pianoforte Sonata in C, Op. 53 (Beethoven), by A. Skoliecka. **6.0**, German Transmission: Famous Singers on Gramophone Records. **7.0**, Concert by a Schrammel Quartet. **7.30**, The Skyscraper—Radio Play in One Act (Szekely). **8.0**, Military Band Concert, conducted by F. Zita: Czech March (Oberthor); Overture, The Kiss (Smetana); Waltz, from Die Landstreicher (Ziehrer); Selection from Cavalleria Rusticana (Mascagni); Tango (Zita); March (Voldan). **8.50**, Talk. **9.0**, Concert by the Station Orchestra, conducted by B. Bakala: Overture, Orpheus in the Underworld (Offenbach); Bacchanale (Dvorák); Spring Serenade (Ambros); Polovtsian Dance, from Prince Igor (Borodin); Oriental Sketches (Mraczek); Moravian Dance (Goldbach). **10.0**, See **Prague. 10.15**, See **Bratislava. 11.0** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon**, Gramophone Concert: Selection from New Moon (Romberg); Alter Refrain (Kreisler); Fantasia, Waldteufel Memories (Finck); Sanctuary of the Heart (Ketelbey); Overture for Guitar, Norma (Bellini); A Wedding in Java (Profes); Oh that Mitzi (O. Straus); Overture, Orpheus in the Underworld (Offenbach-Grothe); The Chinese Storyteller (Dreyer); La volière (Donald); Gipsy Serenade (Borganov); Overture, The Merry Wives of Windsor (Nicolai). **1.0 p.m.**, Le Journal Parlé. **1.10**, Concert by the Small Station Orchestra, conducted by P. Leemans: Marche éthiopienne (Filipucci); Waltz, The Passing of Salomé (Joyce); Intermezzo, Porzellan püppchen (Lincke); Selection from Les Dragons de Villars (Maillart); Serenade (Moszkovsky); Minuet for Violin (Mozart); Jonjou d'amour (Demaret); Selection from The Vagabond King (Friml). **5.0**, Dance Music relayed from the St. Sauveur Palais de Danse. **6.0**, Talk: Tobacco Growing. **6.15**, Gramophone Records: Norwegian Rhapsody (Lalo); The Fair at Sorochinsk (Mussorgsky). **6.30**, Song Recital by M. Druine: Le vent (René); Les berceaux (Fauré); La complainte de la Glû (Delmas). **6.45**, Gramophone Records: Dances from Othello (Verdi); Fantasia for Flute (Hile); Ballade in G Minor (Brahms); Overture, The Flying Dutchman (Wagner). **7.15**, Reading: The Devil in Folklore. **7.30**, Theatre and Cinema Reviews. **8.0**, Concert by the Radio Orchestra, conducted by Charles Walpot. Soloist: Mme. Marville (Songs). Marche russe (Ganne); Overture, Si j'étais Roi (Adam); Songs; Waltz Potpourri, Ce que raconte le Danube (Morena). **8.30**, Le Bonhomme Jadis—Comedy in One Act (Murger). **9.5**, Concert (continued). Soloists: Mme. Brenders and Gras (Pianofortes). March, Stars and Stripes (Sousa); Potpourri, Contrasts (Robrecht); Selection for Two Pianofortes from No No Nanette (Youmans); Cabaret Songs by Mme. Marville; Fortissimo (Kálmán); Lying in the Hay (arr. Brenders). **10.0**, Le Journal Parlé. **10.10**, Orchestral Concert, relayed from the Ancienne Belgique.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**12 Noon**, Concert by the Small Station Orchestra, conducted by P. Leemans; Soloist, M. Derissen ('Cello): March (Beece); Overture, Nordische Sennfahrt (Gade); Waltz (Métra); Selection from The Pearl Fishers (Bizet); 'Cello Solo, La cinquantaine (Marie); Tango (Gade); Fortissimo (Kálmán); Aubade printanière (Lacombe); Foxtrot, Tous les jours, dans le tramway (Sissermann). **1.0 p.m.**, Journal Parlé. **1.10**, Acts I and II of La Bohème (Puccini), on Gramophone Records. **5.0**, Concert by the Radio Orchestra, conducted by Walpot: Unie-marche (Walpot); Third Potpourri of Waltzes (Robrecht); Overture, Zampa (Hérold); Intermezzo, Au jardin d'amour (Hartung); Selection from The Tales of Hoffmann (Offenbach); Fête tzigane (Heykens). **5.45**, Programme for Children. **6.30**, Concert by the Small Station Orchestra, conducted by P. Leemans: Festival Overture (Leutner); Potpourri, Old Vienna in Song and Dance (Pachernegg); Serenade (De Boeck); Selection from La Navarraise (Massenet); Les trésors de Colombine (Drigo); Torero Ramon (Kostal); One Step, Miss Gavroche (Fanix). **7.15**, Educational Talk. **7.30**, Programme by Pirreke Pirrewit. **8.0**, Gramophone Records: Overture, Euryanthe (Weber); Entry of the Gods into Valhalla (Wagner). **8.15**, Reading. **8.30**, Choral, Orchestral and Soloist Concert, relayed from **Antwerp**: Brabançonne (Van Campenhout); Maximilien Robespierre (Litolff); Duet from Milenka (Blockx); Duet, De bloemen en de sterren (Mortelmans); Pianoforte Solos: (a) Romance (Rubinstein, (b) Ballad (Dupuis), (c) Polichinelle (Rachmaninov); Two Songs; Violin Solos: (a) Pieces from Concerto No. 5 (Mozart), (b) Chanson Louis XIII (Couperin-Kreisler), (c) Pavane (Pagnani-Kreisler), (d) Tempo di Minuetto (Pagnani-Kreisler); Two Tenor Solos from The Valkyries (Wagner); Choral Music: (a) 'k Kwam laestmaal over bergen en dalen (Van Duyse), (b) Die Nachtigall (Mendelssohn), (c) Abschied (Mendelssohn), (d) Mailied (Mendelssohn); Orchestra: (a) Scène légendaire (Richard), (b) Naar wijd en zijd (Gevaert). After the Concert, Journal Parlé. **10.30**, Variety Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.**, Concert by the Station Orchestra: March (Fucik); Overture to a Tale (Rust); Waltz, Gallantry (Leopold); Mediæval Suite (Amadei); Selection from Zaza (Leoncavallo). **6.0**, Radio Journal. **6.15**, Concert (contd.): Potpourri Fortissimo (Kálmán); Intermezzo, Silver Clouds (Ketelbey); Gavotte and Musette from Armide (Gluck); Two Pieces from the Cycle Hamburg (Niemann). **7.0**, Educational Talks. **7.40**, Concert by a Children's Choir. **8.0**, Time Signal. **8.1**, Chamber Music by the Theodoresco Quartet. **8.30**, Talk. **8.45**, Song Recital by G. Folesco. **9.5**, Jazz Music on Two Pianofortes. **9.50**, Concert of Light Music and Romanian Music relayed from the Restaurant Elysée.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **8.0 p.m. to 12 Midnight. 5.15 p.m.**, Concert by a Workers' Choir. **6.0**, Recital by Elisabeth Hoor Tempis and Lajos Galánffy (Pianoforte). **6.30**, Humorous Talk. **7.0**, Concert by the Stefan Bertha Orchestra: Overture to an Operetta (Huszka); Fairy Tale (Lányi); Hungarian Romance (Lányi); Legend (Garami); Marechiare (Tavan); Operetta Selection (Lehár). **7.45**, Sports Notes. **8.0**, See **Vienna. 10.0**, News. **10.5**, Pianoforte and Violin Recital by Stefan Thoman and Maria Thoman: Airs (Liszt): (a) Liebestraum, (b) Petrarch Sonnet in A Flat, (c) Russian Melodies; Airs (Handel): (a) Gebet, (b) Pastorale, (c) March; Valse impromptu (Liszt); Gnomen reigen (Liszt); Waltz, La plus que lente (Debussy); Irish Folk Dance (Grainger); Pièce en forme de Habanera (Ravel); Tango (Milhaud); Valsette (Kodaly); Sonatina (Bartok Gertler); Bulgarian Rhapsody (Vladigerov). **11.20**, Jazz Music by the Pataky Band, relayed from the Gellert Hotel.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres**; 7.5 kW.—**12 Noon**, Town Hall Chimes. **12.2 to 1.0 p.m.**, Concert by Carl Rydahl's Instrumental Ensemble. **2.0**, Reading. **2.30**, Recital of Norwegian Songs by Alette Garde. **2.50**, Talk for the Housewife. **3.0**, Music by the Luna Mandoline Orchestra. March, When bleibt Wien (Schrammel); Waltz, Très jolie (Waldteufel); Apple Blossom (Siede); Divertissement, The Tyrol in Song and Dance (Fetras). **3.30**, Gramophone Concert. Sigrid Onegin: Hallelujah from Exultate (Mozart); Heinrich Schlusnus: Peter

Michailov's Aria from Czar and Carpenter (Lortzing); Charles Rousselière: Triste ritorno (Barthélémy-Forzatti); Gregor Piatigorsky ('Cello): Kol Nidrei (Max Bruch); John Hagberg: Ja, ja men (Dardanell); Jenny Howard: You'll always be the same Sweetheart (Tobias and Burke); Potpourri, A Summer's Day in the Alps. **4.0,** Orchestral Concert from the Wivex Restaurant. **5.0** (also relayed by **Skamlebaek** on **31.51 metres**), Divine Service from Christiansborg Castle Church. **6.20,** Talk: Sport in English Literature. **6.50,** Weather and News. **7.15,** Time and Sports Notes. **7.30,** Talk on the Frederiksborg Portrait Collection. **8.0,** Town Hall Chimes. **8.1,** The Hansen Family—a Humorous Episode (Jens Locher). **8.15,** Concert of Modern Music by Louis Preil's Instrumental Ensemble. March from Anne Marie, die Brant der Kompagnie (Althof and Heinz); Suite of Viennese Waltzes (Gilson); Selection from The Flower of Hawaii (Abraham). **8.40,** Recital of Songs. **9.0,** Concert (contd.). March, Chante, o ma mie (Maurice Pesse); Waltz, Eternal Love (Hauck); Two Guitars (Makarov); Tango, Ich leg' mein Herz in deine Händchen (Granichstaedsten); Slav Rhapsody, No. 2 (Friedemann). **9.30,** Reading. **9.50,** Concert (contd.). Marimba Solo (Kjaer); Die Spieluhr der Pompadour (Noack); Vienna City of my Dreams (Sieczynsky); Saxophone Solo; Rubenola (Wiedoeft); Paraphrase, Der Spielmann (Sommer); Jazz Intermezzo, Harlequin (Erwin). **10.15,** 'Cello Recital by Otto Lützhöft). Two Pieces (Debussy): (a) Minuet, (b) La fille aux cheveux de lin; Chansons petites russes (Delmas); Cache-Cache (Bazelaire). **10.30,** Concert (contd.). Addio a Napoli (Murzilli); Fantasy (Herbert Stothart); Manhattan Moonlight (Louis Alter); Spanish Serenade, Salamanca (Grit); The Woman in the Shoe (Brown). **11.0,** Dance Music from the Ritz Restaurant. In the interval at **12 Midnight,** Town Hall Chimes. **12.30 a.m. (Tuesday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,327 kc/s, 226 metres; 10 kW.—**12 Noon,** Gramophone Variety Music. **12.30 p.m.,** News Bulletin. **12.45,** Concert of Light Music. **5.30 to 7.0,** Programme in English by the I.B.C., C. Danvers-Walker, N. McNabb, and F. Lamping announcing. **5.30,** Concert for Hastings and Easthourne Listeners; Special Request Programme: Valse des Alouettes (Drigo); Songs: (a) Onaway awake beloved (Cowen), (b) Try a little Tenderness (Woods); Handsaw Solo, The Rosary (Nevin); Parade of the Tin Soldiers (Jessel); Xylophone Solos, Fairy Tiptoe (Fredericks); Songs: (a) Silvered is the Raven Hair (Sullivan), (b) Brother, can you spare a Dime (Harburg); Handsaw Solo, In a Monastery Garden (Ketelbey); Song, I'm playing with Fire (Berlin); Old Music Hall Memories. **6.15,** Orchestral Concert for Chichester and Bognor Listeners: Classical Selection (arr. Ewing); One Fine Day, from Madame Butterfly (Puccini); Autumn Leaves (Voglein); Old Spanish Song (Aubert); Violin Solos: (a) In the Month of April (Aldington), (b) Fandango (Godowsky); Träume (Wagner); Waltz Song from La Bohême (Puccini); Violin Solo, La Classe (Carlier); Shepherds Hey (Grainger); Waltz, Frühlingsstimmen (Joh. Strauss). **7.0,** News. **7.30,** Answers to Correspondence and News. **8.30,** Concert of Light Music. **10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music by the Dicolians: For the love of Mike; Come and have a Cuddle on the Common; This is the Day of Days; On a Cold and Frosty Morning; Honeymoon Lane; Speedboat Bill; Just once for all time; The Pagan Serenade; Hold my Hand; Roll on Mississippi, roll on; I've got a feeling; The Lights of Paris; Miracle Melodies; The same as we used to do; Blaze away. **11.0,** Light Orchestral Concert: The Skaters' Waltz (Waldteufel); The Butterfly (Nevin); Waltz, Très jolie (Waldteufel); Grasshoppers' Dance (Bucalossi); Over the Waves (Rosas); The Cockchafers' Tea Party (Noack); The Nightingale in the Lilac Bush (Krome); Soldatenlieder (Gungl). **11.30,** Songs from Shows and Sound Films by the Studio Chorus; Song of the Dawn; Song of the Flame; You will remember Vienna; Orchestra: Selection from The Three Musketeers (Friml); Old Man River; Song of the Dawn; Song of the Vagabonds. **12.0 Midnight,** Club Concert for Glastonbury and Exmoor Listeners; The Thunderer (Sousa); Songs of England; Talk by the Mayor of Glastonbury; Song, Wind in the Willows; Distant Greeting (Loring); Song, If I were a King (Coslow); Light of Foot (Lotann); Violin Solo, Hindu Song (Kreisler); Songs: (a) With a Song in my Heart, (b) La Rêve passe (Krier); Violin Solo, Kashmiri Love Song (Woodforde-Finden); Pomp and Circumstance (Elgar); Song, To-day, to-morrow, for ever; Selection of Leslie Stuart's Songs. **1.0,** Concert by an Accordion Band: Javanette; Volante; The Waltz that made you mine; Seuorita; Bertina Waltz; 'Leven pounds of Heaven; After the Ball; Mona Lisa. **1.30,** Songs: On Top of the World; Dream Mother; I may be crazy; Selection from The King of Jazz; Louise; This is Heaven; Lily of Laguna. **2.0,** Dance Music by the Ibcolians; After to-night we say Goodbye; Rock your Cares away; Same old Moon; Goodbye; A Bedtime Story; Goodbye Blues; Where is this Lady? Yes, Mr. Brown; Tell me to-night; Take a Spot of Happiness; She was only Somebody's Daughter; They all start whistling Mary; Marching along together; Happy-go-lucky you. **2.57,** I.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—**3.30 p.m.,** Programme for Children. **4.30,** Orchestral Concert, relayed from **Wiesbaden. 4.50,** Running Commentary on the Rugby Match, Spiel-Club 80 v. the Oxford Greyhounds. **5.20,** Concert (contd.). **6.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** Concert by the Station Orchestra, conducted by Hans Rosbaud. Soloists: Adolf Permann (Baritone) and Gertrud Riedinger (Soprano). Part I—Symphony in D, Op. 36 (Beethoven). Part II—Pfitzner Programme. Prelude to Act One of Das Fest auf Solhang; Two German Songs, Op. 25: (a) Der Trompeter, (b) Klage; Prelude to Act Three of Palestrina. Part III—Lortzing Programme. Prelude and Duet from Der Waffenschmied; Overture, Ali Pascha von Janina; Wie freundlich strahlt di holde Morgensonne, from Der Wildschütz; Overture, Rolands Knappen. Part IV—Waltz Suite. **10.15,** Time, News, Weather and Sports Notes. **10.45,** Serenade from **Munich. 12 Midnight,** Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—**4.30 p.m.,** Concert by the Hamburg Philharmonic Orchestra, conducted by Adolf Secker. Soloist: Fritz Leue (Violin). Overture, La finta giardiniera (Mozart); Ballet Music from Die Geschöpfe des Prometheus (Beethoven); Scherzo from the Symphony in C (Schubert); Albumblatt for Violin (Wagner); Prelude to Lohengrin (Wagner); Hungarian Rhapsody No. 13 (Liszt); Ballet Music from Tatjana (Lehár). **5.30,** The Lyric—a Literary and Musical Programme. **6.10,** Organ and Violin Recital by Hans Werner and Hans Watzke, relayed from a Church: Prelude in E Flat for Organ (Bach); Church Sonata in D Minor (Haas); Largo and Vivace from the Chamber Sonata (Handel-Francke). **6.40,** Sports Notes. **6.50,** Weather Report. **7.0,** German Easter Customs—a Radio Sequence. **8.0,** The Bird Fancier—Operetta in Three Acts (Zeller), relayed from the Municipal Theatre, Schwerin. In the intervals at **9.0,** News, and at **10.10** (approx.), Time and News. **11.0,** Topical Talk. **11.10,** Dance Music relayed from **Berlin (Witzleben).**

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW., and **Danzig, 662 kc/s, 453.2 metres.**—**9.0 a.m.,** Protestant Service. **10.56,** Weather Forecast. **11.0,** Gerhard Eschenhagen reads from his Book, Entscheidung. **11.30,** See **Leipzig. 12 Noon,** Concert by the Königsberg Opera House Orchestra and Five East Prussian School Choirs. **2.0 p.m.,** Dialogue: The German Life-Saving Society. **2.30,** Mandoline and Guitar Concert: March, La Rivista (Sartori); Sehnsucht; Italian Fantasia, Armonie alpine (Sartori); Potpourri of Folk Melodies (Kollmaneck); Ländler (Althoff); Waltz-Intermezzo, Ballnachtsklänge (Kollmaneck); March, Elbtalgruss (Fucik). **3.30** (from **Danzig**). Recital of Fairy Tales. **4.0,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken. March, Mit neuer Kraft (Rettberg); Overture, Orpheus in the Underworld (Offenbach); Slow Waltz, Sophia (Eugen Wilcken); Leichte Brüder (Rust); Russian Rhapsody (Heuser); Selection from Der Waffenschmied (Lortzing); Suite, Hiawatha (Coleridge-Taylor); Waltz, Dolores (Waldteufel). In an interval at **5.0** (approx.), Talk: Memorable Days of the Week. **6.0,** See **Berlin (Königs Wusterhausen). 8.0,** Sports Report. **8.10,** Concert by the Königsberg Opera House Orchestra, conducted by Karl Hrubetz, the Belcantores Vocal Quintet and Soloists. **10.10,** News and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—**12.40 p.m.** till Close Down. Programme of the Workers' Radio Society (V.A.R.A.). **12.40,** Concert by the Small V.A.R.A. Orchestra, conducted by P. Duchant. Soloist: M. de Booy (Songs). **1.25,** Talk. **1.55,** Concert by De Notenkrakers, conducted by D. Wins. **2.40 to 2.55,** Interval. **2.55,** Variety Music on Gramophone Records. **5.10,** Programme for Children, followed by Organ Recital by J. Jong: Overture, Zampa (Hérold); Angélus de pêcheurs (Gonblier); Ballet Music from Faust (Gounod). **6.40,** Concert by the V.A.R.A. Children's Choir. **7.0,** Organ Recital (contd.): In Japan (Bratton); In a Japanese Garden (Higgs); Serenade (Perry); An Old Violin (Howard-Fischer); Gavotte (Gamne); March from Aïda (Verdi). **7.30,** Light Music on Gramophone Records. **7.40,** Concert by the Aguilar Lute Quartet. **8.10,** Dramatic Programme. **8.40,** Mahler Concert by the V.A.R.A. Orchestra, conducted by H. de Groot. Soloist: H. Koning (Bass): Kindertotenlieder; Adagietto from the Fifth Symphony. **9.10,** News. **9.25,** The Triumph of the Intellect—Play (E. Johannsen) with Music by W. Grnatis. **9.55,** Popular Music on Gramophone Records. **10.10,** Concert by the V.A.R.A. Orchestra: Kleiner Wiener Marsch (Kreisler); Selection from The Rose of Stamboul (Fall); Leichtes Blut (Strauss); Banditen-Galopp (Stranss); Caprice viennois (Kreisler); Wien bleibt Wien (Schrammel); Selection from Paganini (Lehar). **10.55,** Song Recital by J. Moulijn. **11.10,** Concert (contd.): Overture, H Guarany (Gomez); Dances from Nell Gwynn (German); Poem (Fibich); Rêve (d'Ambrosio). **11.40,** Song Recital (contd.). **11.55,** Popular Music on Gramophone Records. **12.40 a.m. (Tuesday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—Programme of the Christian Radio Society (N.C.R.V.). **1.10 p.m.,** Organ Recital from **Amsterdam. 2.10,** Programme in Commemoration of the Fourth Centenary of the Birth of Prince William of Orange, relayed from the Market Place, Delft. Programme of Addresses, with Music, and Unveiling of a Memorial Tablet. **4.40,** Concert by the Amsterdam Orchestra, conducted by Frans van Diepenbeek. Psalm 72; Aria from Rinaldo (Händel); Andante from the Fifth Symphony (Beethoven); Romance (Svendsen); Overture, William Tell (Rossini); Three Songs for Tenor; Prelude to King Manfred (Reinecke); Melody (Rebatter); De Fremersberg (Koeneman); 's komimt ein Vogel geflogen (Ochs); March (Mendelssohn). **6.10,** Carillon Recital from **Arnhem:** Prelude (Gheyn); Two Chorals (Bach); Easter Cantata (Grünholzer); The Sixth Sonata (Nicolai); Les Moulins qui chantent (Van Oost); Selection from Les Cloches de Corneville (Planquette); Welsh Melody, Men of Harlech; Sonatina, No. 4 (Pleyel). **6.55,** Choral Concert from **Amsterdam. 7.40,** An Easter Story illustrated with Gramophone Music. **8.10,** Concert by the Con Amore Oratorio Society. Selection for Soloists, Choir, Orchestra and Organ, from The Messiah (Händel); Concerto in G Minor for String Orchestra and Organ (Vivaldi); Easter Cantata (Max Bruch). **9.40,** Orchestral Concert, conducted by Henri van Gondeever. Overture, The Barber of Seville (Rossini); Suite from Le Bourgeois Gentilhomme (R. Strauss); Overture, Mignon (Thomas); Suite from Carmen (Bizet); Overture, Lohengrin (Wagner); Siegfried Idyll (Wagner); Les Préludes (Liszt); España (Chabrier). In an interval at **10.40,** News. **11.40,** Gramophone Records of Sacred Music. **12.10 a.m. (Tuesday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News, and Financial Notes. **8.10,** Sports Notes. **8.30,** Weather and News. **8.45,** Don Pasquale—Opera (Donizetti), relayed from the Palais de la Méditerranée. **12 Midnight to 1.0 a.m. (Tuesday),** Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight,** Light Music: Pianoforte Duet from The Cat and the Fiddle (Kern); Songs (Carter): (a) Springtime reminds me of you, (b) Close your Eyes; Orchestra, Paris; Pianoforte Solo, Selection from Bow Bells (Sullivan); Songs: I feel you near me, (b) A Pair of Blue Eyes; Orchestral Selection, Happy Days. **12.30 a.m.,** Dance Music: Open up dem Pearly Gates; Tap your Feet; In the Jailhouse now; The Minor Drag; I'm so in Love with you; Harlem Fuss; Shout 'em Aunt Tillie; Betty Coed. **12.57,** I.B.C. Goodnight Melody. **1.0,** Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0 p.m.,** Concert by the Little Münster Orchestra. Soloist: Hans Wrana-Lienhart (Baritone): Overture, The Magic Flute (Mozart); Suite Gempestre (Amadei); Selection from The Daughter of the Regiment (Donizetti); Three Ballads (Loewe): (a) Der Nöck, (b) Die Uhr, (c) Heinrich der Vogler; Waltz, Strandwellen (Lüling); Finale from Undine (Lortzing); Selection from Der Evangelimann (Kienzl); Clog Dance from Czar and Carpenter (Lortzing); Potpourri of Marching Songs, Jung Deutschland (Weninger). **2.30,** Talk: Easter in the Garden. **2.55,** Talk: German Women in the South Tyrol. **3.20,** Talk: German Agriculture. **3.45,** Die Sterntaler—Fairy Play from Grimm (arr. Elmar Werlé). **4.30,** Concert from **Frankfurt. 6.0,** Holy Year in Poems and Songs. **7.0,** An Easter Programme to be announced). **8.0,** Sports Notes. **8.15,** Easter Monday Concert. **10.5,** News and Sports Notes. **10.45** (approx.), See **Munich. 12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**11.30 a.m.,** Bleib bei uns, denn es will Abend werden—Cantata (Bach), by the Gewandhaus Orchestra, the Choir of St. Thomas' and Soloists. **12 Noon,** See **Heilsberg. 1.0 p.m.,** Concert Relay. **2.0,** Programme for Children. **2.25,** Sextet in B Flat, Op. 18 (Brahms). **3.0,** Talk with Gramophone Illustrations: A Phonetic Laboratory. **3.40,** Concert of Light Music and Dance Music by the Emdé Orchestra. **5.30,** The Honeymoon—a Comedy (Roderich Benedix). **7.0,** Pianoforte Concerto in B Flat, Op. 19 (Beethoven). **7.30,** Topical Talk. **8.0,** National Songs for the Youth of Germany, sung and composed by Sepp Summer. **8.30,** Concert by the Leipzig Symphony Orchestra. **10.5,** News Bulletin. **10.20** (approx.). Concert by the Leipzig Soloists's Orchestra, conducted by Albert Türk. **12 Midnight** (approx.), Close Down.

LINZ.—See **Vienna.**

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** Concert of Light Music. In the interval at **11.45,** Wireless Review. **12.35 a.m. (Tuesday),** Sports and Bullfighting Notes. **12.40** (approx.), Variety Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.4 metres; 2 kW. **8.0 p.m.,** Chimes, Exchange Quotations, and Radio Journal. **8.15,** News Bulletin. **8.30** (approx.), Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,367 kc/s, 263.8 metres; 11 kW.—**7.0 p.m.,** See **Brno. 7.20,** See **Prague. 10.15** till Close Down, See **Bratislava. 11.0** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW. **6.30 p.m.,** Dance Music or Concert, relayed from the Radio Theatre or the Conservatoire. **8.0,** Talk in German, followed by Russian Lesson. **9.0,** Talk in English: Marx and Lenin. **9.30,** Programme Announcements. **9.55,** Announcements. **10.5,** Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—**11.30 a.m.,** See **Leipzig. 12 Noon,** Orchestral Concert, conducted by Erich Kloss: Overture, Donna Juanita (Suppé); Two Pieces (Brandt): (a) Ostern, (b) Nesya; Selection from Carmen (Bizet); Waltz, Wo die Zitronen blühn (Joh. Strauss); Potpourri of Schubert Music (Ralf); Serenade and Round Dance (Jensen). **1.5 p.m.,** Time, Weather and Programme Announcements. **1.15,** Talk for Farmers. **1.35,** Gramophone Concert of Popular Music. **2.30,** Chess Lesson. **3.15,** Programme for Children. **3.35,** Franz Spunda reads his Greek Travel Sketch, Dodona. **4.0,** Eighteenth Century German Folk Songs—Recital by Ella Jörn-Reinhold. **4.15,** Talk: German Pioneer Settlers in Canada. **4.40,** Concert. **5.45,** Weather and Sports Notes. **6.0,** Programme for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** Provincial Programme. **9.0,** Paul Graener Concert by the Station Orchestra, conducted by the Composer. Soloist: Paul Grümmer ('Cello). Juventus Academica; Concerto for 'Cello and Orchestra; Comedietta. **9.40,** Dances for Violin and Pianoforte by Elisabeth Bischoff and Richard Staab. **10.20,** Time, Weather, News and Sports Notes. **10.45,** Serenade, conducted by Erich Kloss.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredrikstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—5.15 p.m., Concert of Chamber Music by the Radio Ensemble. 6.15, M. Peter Egge reads from his own Works. 6.45, Song Recital by Mme. Eva Haxthow (Contralto): (a) Aus den östlichen Rosen (Schumann); Die letzten Blumen (Schumann); Liebesbotschaft (Schubert); Adieu (Schubert); Three Songs (Siading); Song (Kjerulf). 7.15, Weather and News. 7.30, Talk: Kagawa, the Japanese Social and Religious Reformer. 8.0, Time Signal. 8.1, Variety Concert by the Walter Schubert Ensemble. 9.40, Weather and News. 10.0, Topical Talk. 10.15, Recitations. 10.45, Concert of Old and New Dance Music by the Walter Schubert Dance Band. 12.0 **Midnight** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—8.0 p.m., Dopolavoro Announcements, Tourist Talk, Agricultural Talk, Report of the Royal Geographical Society and Giornale Radio. 8.20, Light Music on Gramophone Records. 8.30 (in an interval), Time and Announcements. 9.0, See **Turin.** 10.55, News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (preliminary and 6-dot Signals).—6.45 p.m., Theatre Review. 7.0, Le Journal Parlé. 8.20, Weather Report. 8.30, Concert by the Musical Composers' Music Society.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kw.—6.45 p.m., Journal Parlé. 7.0, Hot Jazz Music on Gramophone Records. 7.30, Sponsored Concert. 8.0, Medical Talk. 8.5, Talk on Aviation. 8.15, Interval. 8.30, Sponsored Concert. 9.40, Concert: Barcarolle (Rachmaninov); Gopak (Mussorgsky); March from The Love of the Three Oranges (Prokofiev); Rhapsody No. 11 (Liszt); Jeux d'eau (Ravel); Dance from El amor brujo (Falla); Rigaudon (Ravel); Minuet (Ravel); Bohemian Airs (Sarasate). 10.40, News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Gramophone Records. 8.0, Press Review and Weather. 12 **Noon,** Concert of Opera and Ballet Music by the Radio Paris Orchestra: March from Idomeneo (Mozart); Melodies from Romeo and Juliet (Gounod); Gramophone Record: Aria from Don Quichotte (Massenet); Gramophone Record: Roland, Roland, from Esclarmonde (Massenet); Gramophone Record: Printemps qui commence and Amour, viens aider ma faiblesse, from Samson and Delilah (Saint-Saëns); Selection from Marouf (Rabaud); Gramophone Record: Waltz from Der Rosenkavalier (R. Strauss); Selection from Les Hérétiques (Levadé); Ballet Music from Naïla (Gaubert); Selection from Arlequin (d'Ollone). In the intervals at 1.0, Exchange, News, and Weather, and at 1.30, Exchange. 2.0, Light Music on Gramophone Records. 3.45, Running Commentary on a Football Match, relayed from the Stadium, Paris. 6.10, Agricultural Report. 6.30, Gramophone Concert: Xylophonia (Green); Le bel oiseau (Dalcroze); Gramophone Record: Fable, Le chat, la belette et le petit lapin (La Fontaine); The Little Gobling (Eilenberg); Le Chirurgien du roi s'amuse (Mortier); Gramophone Record: Bonhomme (Nadaud); Humorous Scenes on Gramophone Records (Leonard). 7.0, Concert by the Radio Paris Orchestra: French March (Ganne); Selection from The Pearl Fishers (Bizet); Carnaval (Guiraud); First Suite from Peer Gynt (Grieg). 7.45, Commercial Prices and News. 8.0, Le coup d'aile—Play (de Curel). In the intervals at 8.30, News and Weather, and at 8.40, Review by Reboux and at 9.15, Press Review and News. 10.0, Gramophone Concert of Opéra-Comique and Operetta Music: Selection from Philémon et Baucis (Gounod); Two Songs from Fortunio (Messager); C'est toute une histoire, from Le bon roi Dagobert (Rousseau); Il est musulman and La Caravane, from Marouf (Rabaud).

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—10.0 p.m., Work-a-day Thoughts. 10.5, Business News. 10.15, Ballroom Promenade. 10.30, Weather Report. 10.32, Market Report. 10.45, Lois Miller (Folk Songs). 10.57, David Lawrence Dispatch. 11.0, Programme to be announced. 11.15, Dick Daring, from **New York.** 11.30, The Singing Lady, from **New York.** 11.45, Little Orphan Annie. 12.0 **Midnight,** Booth Tarkington's Maude and Cousin Bill, from **New York.** 12.15 a.m. **(Tuesday),** Time Signal. 12.16, Weather Report. 12.17, Tenberry Sport Review. 12.22, Press News Reeler. 12.29, Temperature Report. 12.30, KDKA Orchestra. 12.45 to 4.15, **New York** Relay. 12.45, To-day's News, by Lowell Thomas. 1.0, Pepsodent Amos 'n' Andy. 1.15, Tasteyeast Jesters. 1.30, Five Star Theatre—Marx Brothers. 2.0, Cliquot Club Eskimos. 2.30, Time Signal and Don Carney—a Talk for Dog Lovers. 2.45, Phil Cook and the Ingram Shavers. 3.0, Sinclair Minstrels. 3.30, Jack Frost Melody Moments. 4.0, Three Keys. 4.15, Programme to be announced. 4.30, Bridge School of the Air, by E. Hall Downes. 4.45, Pioneer Quartet, with Helen Bell Rush. 5.0, Time Signal. 5.1, Teaberry Sport Review. 5.11, Temperature Report. 5.12, Weather Report. 5.13, KDKA Artist Bulletin. 5.15, Press Last Minute News. 5.20, Dave Roberts—Left-handed Banjoist. 5.30, Smith Ballew and his Orchestra. 5.58, KDKA Artist Bulletin. 6.0, Hotel Bismarck Orchestra, from **New York.** 6.30, Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—4.0 p.m., See **Bratislava.** 6.30, Talk. 5.45, Variety Music on Gramophone Records. 6.0, German Transmission: A Happy Easter—a Humorous Radio Sequence, followed by News. 7.0, See **Brno.** 7.20, Talk on the following Transmission. 7.30, Godfather Death—a Musical Play in Four Acts (Karel), relayed from the National Theatre. In the interval at 9.0, Time Signal. 10.0, Time and News. 10.15, See **Bratislava.** 11.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 315 kc/s, 760 metres.**—4.15 to 10.0 p.m., Programme relayed from **Lausanne.** 4.15, Talk. 4.30, Concert of Country Music by the Moser Orchestra. 5.0 to 6.0, Interval. 6.0, Programme for Children. 6.30, Pianoforte Recital by Mlle. Schmitt. 7.0, Weather, News and Announcements. 7.30, Talk on the Friendly Relations between Switzerland and Greece. 8.0, Variety Concert by the Moser Orchestra and the Jura Trio. 9.0, Humorous Recitations. 9.20, Concert by the Russian Isba Balalaika Orchestra. Soloist: Mme. Talalaev (Songs). 10.0, News and Weather Report. 10.15 (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.**—7.45 a.m., Gymnastics. 8.15 to 8.30, Giornale Radio and Announcements. 12.30 p.m., Weather and Light Music on Gramophone Records. 1.0 (approx.), Time and Announcements. 1.2 to 2.15, Gramophone Concert of Variety Music. In the interval from 1.30 to 1.45, Giornale Radio and Exchange. 4.45, Children's Radio Review. 5.10, Announcements. 5.15, Exchange and Giornale Radio. 5.30, Concert from the Royal Philharmonic Academy. 7.0 (**Naples**), Shipping and Sports Notes. 7.10, Agricultural and Dopolavoro Notes. 7.20, Giornale Radio. 8.0, Time, Announcements and Light Music on Gramophone Records. 8.30, Sports Notes and Tourist Report. 9.0, See **Turin.** 10.0, Talk. 10.15, Concert of Light Music: Nuttata a mare (di Capua); Carmela mia (Cannio); A Surrentina (De Curtis); Albergo e' l'allegria (Gambardella); Uocchie c'arraggiunate; Mamma mia che vò sapè (Nutile); Carcioffolà (Di Capua); Luna nova (Costa); I' m'arricorde 'e te (de Curtis); Amor consente (Mario); Napule bello (Da Chiara); Catari (Costa); Core n' grato (Cardillo); E tre fronne (Ricciardi); Maria, Mari (di Capua); Torna maggio (Di Capua); Dringhete ndrà (De Gregorio). 10.55, News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—8.30 p.m., The Revolving Stage, from **New York.** 9.0, Talk, from **New York.** 9.15, Ella Boyce (Contralto). 1.0 a.m. **(Tuesday),** Boy Scout Programme. 1.15, Wheatena Ville. 1.15 **(WGY** only), Stock Reports. 1.30, Upstaters. 1.45 to 3.30, **New York** Relay. 1.45, The Goldbergs. 2.0, Soconyland Sketch. 2.30, Voice of Firestone. 3.0, A & P Gipsies. 3.30, Buick Programme from **New York,** followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—11.0 a.m. (from **Zürich**), Gramophone Chamber Music. 12 **Noon** (from **Zürich**), Concert by the Radio Orchestra. 12.28 p.m., Time and Weather. 12.30 (from **Zürich**), Concert by the Radio Orchestra (contd.). 1.30 (from **Zürich**), Concert by the Anton Smetak Zither Trio, with Gramophone Interludes. 2.30 to 3.30, Interval. 3.30 (from **Zürich**), Concert by the Little Radio Orchestra. 4.0 (from **Zürich**), Musical and Literary Programme. 5.0 to 6.30, Interval. 6.30 (from **Zürich**), Talk in a Foreign Language. 7.0, Time, Weather and Sports Notes. 7.15 (from **Zürich**), Talk: The Human Hand. 7.45 (from **Zürich**), Third Experimental Transmission from the New Studio: Recital of Swiss Songs by Hermann Ernst and the Radio Orchestra. 9.30, Weather and News. 9.40 (from **Zürich**), Dance Music by the Radio Orchestra. 10.15 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres; and Sundsvall, 554 kc/s, 542 metres.**—4.0 p.m. (from **Ostersund**), Programme for Children. 4.45, Popular Music on Gramophone Records. 5.45, Reading: Two Stories. 6.15, Orchestral Concert. Soloist: Olof Thorborg (Songs); Overture, The Merry Wives of Windsor (Nicolai); Waltz, Tales from the Vienna Woods (Joh. Strauss); Songs: (a) Before you came (Temple King), (b) Mattinata (Tosti), (c) Mother Machree (C. Olcott and E. R. Ball); Violin Solo: La capricciosa (Ries); Humoresque (Dvorak); Songs: (a) Friend of Mine (Sanderson), (b) Solace (Aylward), (c) Love Everlasting (Friml); Grieg Potpourri (Urbach). 7.15, Weather and News. 7.30, Reading. 8.0, Countess Maritza—Operetta in Three Acts (Kálmán). 9.45, Weather and News. 10.0 (from **Göteborg**), Military Band Concert: March (Austin); Overture (Raudel); Waltz (Lindsay); Suite on Swedish Motives (Lövgren); Romance (Lundström); Selection from The Merry Widow (Lehár); Slav Dance No. 8 (Dvorak); American Sons and Daughters of Sweden (Briegel). 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.30 a.m., Opera Music on Gramophone Records 12.45 p.m., News. 1.0, Time and Variety Music on Gramophone Records. 2.0 to 5.0, Interval. 5.0, Spring—Orchestral Concert, conducted by Roskam. March (Blankenburg); Waltz, Frühlingsstimmen (Strauss); Spring's Awakening (E. Bach); Spring Song (Mendelssohn); Chanson du Printemps (Gounod); To Spring (Grieg); Rustle of Spring (Sinding); Aubade printanière (Lacombe); Spring (Hildbach); Waltz, O, Frühling wie bist du so schön (Lincke); Marche printanière (Filipucci). 6.0, Literary Review. 6.15, Talk on Lorraine. 6.30, Orchestral Concert, conducted by M. de Villers. Overture, Jean de Paris (Boieldieu); Ballet Music from Masaniello (Auber); Waltz, Wiener Bonbons (Strauss); Selection from La Fille de Madame Angot (Lecocq); Czardas (Grossmann); March, Stars and Stripes (Sousa). 7.30, Time and News. 7.45, Popular Music on Gramophone Records. 8.15, Press Review in German, Lottery Results and Announcements. 8.30, Orchestral Concert, conducted by H. Hesten, relayed from **Lille, 1,130 kc/s, 265.4 metres.** Selection from The Bartered Bride (Smetana); Movement from the Ninth Symphony (Beethoven); Nocturne from A Midsummer Night's Dream (Mendelssohn); In the Steppes of Central Asia (Borodin); Conte d'avril (Widor); Symphony No. 2 (Beethoven). After the Concert, Press Review in French. 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—12 **Noon,** See **Heilsberg.** 1.30 p.m., Concert of Wind Instrument Music relayed from **Rastatt.** 2.0 (from **Mannheim**), Agricultural Talk. 3.0, Variations on the Deutschlandlied, Op. 18, for Pianoforte (Reiff), played by the Composer. 3.30, See **Frankfurt.** 6.0, Talk with Gramophone Records: Religious Folk Songs of Alsace Lorraine, the Southern Tyrol, Transylvania and Gottschee. 6.40, Sports Results. 7.0, Mozart Song Recital by Martha Weber-Neube (Contralto): An die Freude; Wie unglücklich bin ich nicht; O heiliges Band; Geheime Liebe; Die Zufriedenheit im niedrigen Stande; Als Luise die Briefe ihres ungetreuen Geliebten verbrannte; Die kleine Spinnerin; Das Veilchen; Der Zauberer; Zufriedenheit; Sei du mein Trost; Abendempfindung. 7.30, Harpsichord Recital by Paul Schwob: Italian Concerto (Bach); Aria and Variations in E, The Harmonious Blacksmith (Handel). 8.0, See **Frankfurt.** 10.15, Time, News, Weather, Programme Announcements, and Sports Report. 10.45, See **Munich.** 12 **Midnight,** Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—5.0 p.m., News. 6.15, Opera Music: Arias from: (a) L'Africaine (Meyerbeer), (b) La Juive (Halévy), (c) The Valkyries (Wagner), (d) Samson and Delilah (Saint-Saëns). 6.30, Spanish Caprice (Rimsky-Korsakov) by a Symphony Orchestra. 6.45, Chansonnettes. 7.0, Music by an Argentine Orchestra. 7.15, Racing Results, Market Prices, and News. 7.25, Local News Bulletin. 7.30, Ensemble Music. 7.45, Opera Music: Melodies from (a) Philémon et Baucis (Gounod), (b) I Pagliacci (Leoncavallo), (c) Tosca (Puccini). 8.0, Concert by a Viennese Orchestra: Liebesfreud (Kreisler); Selection from The Bird Fancier (Zeller); Serenade (Moszkowsky); Selection from The Arabian Nights (Joh. Strauss); Midnight Waltz (Amodip); Dream. Waltz (Locatelli). 8.30, Songs from Sound Films. 8.45, Violin Solos. 9.0, Extracts from Aida—Opera (Verdi). 9.30, Symphony Concert: Norwegian Dance (Grieg); Minuet in G (Beethoven); Overture, Idomeneo (Mozart); Selection from Schwanda the Piper (Weinberger); Minuet (Schubert). 10.0, Light Orchestral Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco. 11.0, Popular Music. 11.30 to 12 **Midnight,** Programme in English by the I.B.C., W. Brown-Constable announcing. 11.30, Light Music: When anybody plays or sings; I certainly don't need you (Long); She was only somebody's Daughter (Weston); Britelodia (Humphries); Mother's Smile (Malcolm); Ain't it great to be home again (Gilbert); The Night was made for love. 11.57, I.B.C. Goodnight Melody. 12 **Midnight,** News, Weather, and Announcements. 12.5 a.m. **(Tuesday),** Dance Music. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—5.30 p.m. till Close Down, Programme from **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—5.30 p.m., See **Rome.** After the Relay: Giornale Radio, Agricultural and Dopolavoro Notes. 7.0, Time, Tourist Report and Gramophone Records of Variety Music. In the interval from 7.20 to 7.45, Giornale Radio. 8.0, Announcements, Giornale Radio, Weather and Light Music on Gramophone Records. 8.45, Talk. 9.0, Soprano and Tenor Song Recital by Mafalda Favero and Antonio Melandri, with Orchestral Music, conducted by Ugo Tansini. 10.0, A Comedy in One Act. Gramophone Records of Variety Music after the Comedy. 11.0, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and **5,969 kc/s, 50.26 metres (Evening);** 10 kW.—11.0 to 11.15 a.m., Religious Information in Italian. 8.0 to 8.15 p.m., Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—10.10 a.m., Easter Chorals. 10.40, Reading: I meet Napoleon (Jos. Harrer). 11.0, Sonata in E flat for Clarinet and Pianoforte, Op. 120, No. 2 (Brahms). 11.30, Talk: Excavations in Aguntum. 12 **Noon** to 2.0 p.m., Concert by the Vienna Symphony Orchestra, conducted by Max Schönherr. Soloists: Emmy Zopf (Pianoforte), Leonardo Aramesco (Tenor). 3.0, Time and Programme Announcements. 3.5, Guitar Recital of Chamber Music. 4.5, Reading of Easter Tales. 4.30, Talk: A Journey to Trans-Jordan. 5.0, Popular Concert by the André Hummer Orchestra. 6.15, Reading: Spring in the Mountains. 6.45, Reading. 7.15, Time, Sports Notes and Programme Announcements. 7.25, Original Pianoforte Duet—by Dr. Paul Weingarten and Friedrich Wührer. 8.0, In Praise of Woman—a Radio Potpourri by the Women's Choir of the Vienna National Opera House, the Josef Holzer Orchestra, and Soloists. 9.30, News. 9.45, Concert of Popular Music.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.57 a.m., Time Signal and Fanfare from St. Mary's Church, Cracow. 12.5 p.m., Programme Announcements. 12.10, Weather Forecast. 12.15, Instrumental and Vocal Concert of Compositions by Henryk Szczawinsky-Melcer. Selection from an Opera; Pianoforte Concerto No. 2 in C Minor; Four Songs; Pianoforte Solos. 2.0, Agricultural Talk. 2.20, Concert by the Orchestra of the Musicians' Association. 2.40, Talk: Housekeeping during the Financial Crisis. 3.0, Concert (contd.). 4.0, Reading for Children. 4.25, Popular Music on Gramophone Records. 4.45, Talk: How to Cultivate a Small Garden. 5.0, Pianoforte and Song Recital by Mme. Familier-Hepner and M. Perkowicz. 5.25, Programme Announcements. 6.0, Dance Music relayed from the Cristal Restaurant. In the interval: News. 7.0, Miscellaneous Items. 7.25, The Education of Lady Fanny—Radio Play (Jerome K. Jerome). 8.0, Dolly—Operetta in Three Acts (Hirsch). 10.0, Answers to Technical Correspondence. 10.15, Dance Music from the Adria Café. 10.55, Weather Forecast and Police Notes. 11.0, Dance Music from the Adria Café.

ZURICH.—See **Schweizerischer Landessender.**

TUESDAY

APRIL THE EIGHTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Chamber music of Cobbett Prize Works.
LONDON REGIONAL	"Chu Chin Chow," a musical tale of the East.
MIDLAND REGIONAL	Instrumental and vocal recital.
NORTH REGIONAL	British Composers, orchestral concert.
WEST REGIONAL	Band concert.
SCOTTISH REGIONAL	An excerpt from the Theatre Royal, Edinburgh.
BELFAST	Variety programme.

ABROAD

BRUSSELS (No. 1)	9 p.m. The Symphony Orchestra, conducted by J. Kumps.
BUDAPEST	7.45 p.m. The Budapest Concert Orchestra, conducted by Bruno Walter (relayed by **Huizen**).
COPENHAGEN	10.30 p.m. Opera music by the Station Orchestra.
HAMBURG	10.30 p.m. The Philharmonic Orchestra, conducted by José Eibenschütz.
KONIGSWUSTERHAUSEN	7 p.m. Bach's Organ Fantasia in G Minor. Beethoven's String Quartet in E Flat (relayed by other German stations).
POSTE PARISIEN	8.30 p.m. The Station Symphony Orchestra.
STOCKHOLM	8.45 p.m. "Carmen," a parody on Bizet's opera.
STRASBOURG	6.30 p.m. Concert conducted by M. de Villers.
VIENNA	8.5 p.m. Brahms Choral Concert, from the Musikvereinssaal.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Popular Music on Gramophone Records. **6.0,** Light Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** British Market Report. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** Recitation of Poems. **8.0,** Concert of Ballads by the Station Orchestra. **8.30,** Soprano Solos by L. Ennis. **8.50,** The Station Orchestra. **9.0,** Talk: The Poetry of Francis Thompson. **9.25,** 'Cello Solos by K. Pollaky. **9.45,** J. MacGarvey (Entertainer). **10.5,** Bass Solos by H. McCormick. **10.15,** The Station Orchestra. **10.30,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Concert. **8.30,** Exchange Quotations and Talk on Art. **9.0,** Request Gramophone Concert and News. **10.0,** Chimes from the Cathedral, Weather Forecast, Messages to Seamen, Exchange and Market Prices. **10.5,** Sponsored Programme. **10.30,** Two One-Act Musical Comedies: (a) La Rabalera (Vives), (b) Pepe Gallardo (Chapi). **12 Midnight** (in an interval), News Bulletin. **1.0 a.m. (Wednesday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Report, Tourist Talk and Announcements. **8.20,** Giornale radio and Press Review. **8.20,** Time and Announcements. **8.35,** Concert by a Plucked String Quartet: Overture, Port and Peasant (Suppé); Canto della foresta (Sartori); Carezze marine (Sartori); Pierc; Selection from La Traviata (Verdi). **9.0,** Il piccolo Haydn (Little Haydn)—One Act Comedy (Checchi). **9.30,** Mandoline Concert: Overture, Risveglio (Anelli); Serenade (Schubert); Fiamel italico from Act II of Poliuto (Donizetti); Spanish Rhapsody (Salviettl); Selection from La Sonnambula (Bellini). **10.30,** Variety Music on Gramophone Records. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**4.30 p.m.,** Concert by the Radio Orchestra: Overture, Prince Igor (Borodin); Slav Dance No. 16 (Dvorák); Suite, Jeux d'enfants (Bizet); Selection from The Circus Princess (Kálmán). **6.55,** Time and Programme Announcements. **7.0,** Popular Music on Gramophone Records. **7.20,** Talk. **8.0,** Military Band Concert. **9.30,** News, followed by Light Music from the Imperial Hotel.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**12 Noon,** Weather for Farmers. **12.5 p.m.,** Gramophone Concert: Choral Prelude, Aus tiefer Not (Bach); Movement from Musikalisches Opfer—on a theme by Frederick the Great (Bach); Overture, Das Liebesverbot (Wagner); Es muss ein wunderbares sein (Liszt); Im Rhein, im schönen Strome (Liszt); Fantasia, Grieg Reminiscences (Urbach); Duet from La Bohème (Puccini); Selection from The Bird Fancier (Zeller); Alexander-Marsch (Leonhardt); March, Märkische Kolonnen. After the Concert: Weather for Farmers. **12.55,** Nauen Time Signal. **1.45,** News. **2.0,** Gramophone Concert from **Berlin (Witzleben). 3.0,** Programme for Young People. **3.30,** Weather and Exchange. **3.45,** Review of Books. **4.0,** Talk for Women: Handicrafts and the Modern Household. **4.30, See Leipzig. 5.10,** Topical Programme. **5.30,** Max Marschalk Recital by Margarethe Klose (Songs): Songs from Seven Poems by Edvard Stuken: (a) Erinnerung, (b) Wiedersehen, (c) Mondzauber, (d) Mahnung, (e) Herbst, (f) Auf der Hügelbank, (g) Wehemder Wald; Two Songs to Poems by Anette von Droste-Hülshoff: (a) Verliebt, (b) Verflucht; Two Songs to Poems by Emanuel von Bodman: (a) Sehnsucht, (b) Schlummerlied. **6.0,** A Poem. **6.5,** Talk: Class Hatred or Unity? **6.25,** Light Music by the Bernard Dercksen Orchestra: Overture, Der Schauspieldirektor (Mozart); Nina (Pergolesi); Dance Melodies (Dercksen); Selection from Wiener Blut (Joh. Strauss). **6.55,** Weather and Announcements. **7.0,** Transmission for all German Stations—Organ Fantasia in G Minor (Bach), by Hans Georg Görner; Talk by Dr. Friedrich Würzbach; Nietzsche and German Destiny; String Quartet in E Flat, Op. 74 (Beethoven), by the Strub Quartet. **8.5,** See **Langenberg. 10.0,** Weather, News and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Concert from **Hamburg. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 **kW.—6.20 p.m.,** Review of Books. **6.50,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** Concert of Light Music by Hans Bund and his Orchestra. In the interval at **8.45,** A Play in German Dialect. **10.15,** Weather, News and Sports Notes. **10.30** (approx.), See **Hamburg. 12 midnight** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,070 kc/s, 279 metres; 11 kW.—**5.35 p.m.,** Light Music on Gramophone Records. **6.5,** See **Prague. 6.25,** Gramophone Records (contd.). **6.55,** News. **7.0,** See **Prague. 7.25,** See **Moravská-Ostrava. 8.0,** See **Brno. 9.0,** See **Prague. 9.20,** See **Brno. 10.0,** See **Prague. 11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—1.10 p.m.,** Gramophone Concert: Song for Choir from The Seasons (Haydn); An den Frühling (Grieg); Rustle of Spring (Sinding); Frühlingstraum (Schubert); Spring Song (Mendelssohn); Waltz, Die Fenster auf, der Lenz ist da (May-Joh. Strauss). **1.45,** Time, Weather, News, Exchange and Shipping Notes. **2.5,** A Gramophone Concert in Blue: Rhapsody in Blue (Gershwin); Valse bleue (Margis); Cornflower Song (Mylius-Krüger); Das Veilchen (Mozart); By the Blue Hawaiian Waters (Ketelbey); Blues: Blue Night (Rollins); Blau, blau, himmelblau Duet from Frühlingsstürme (Weinberger); Blue Danube Waltz (Joh. Strauss). **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Market Prices. **3.40,** Programme for Children. **4.10,** Concert by the Station Orchestra, conducted by Franz Marszalek. **5.20,** Market Prices. **5.25,** Book Review. **5.40,** Georg Britting reads from his own Works. **6.10,** Topical Programme. **6.30** Talk: How Prussia became a Great Power. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** See **Berlin (Witzleben). 10.15,** Time, Weather, News, Sports Notes, Market Prices and Programme Announcements. **10.25,** Political Press Review. **10.35,** Theatre Talk. **10.45,** Talk: Reminiscences of the Silent Film. **11.0,** Concert from **Hamburg. 12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**6.25 p.m.,** German Transmission: News, Agricultural Report and Two Talks. **7.0,** See **Prague. 7.10,** Talk: The Upkeep of Memorials. **7.25,** Wind Instrument Concert. **8.0,** Cabaret. **9.0,** Choral Music. **9.20,** Gustav Mahler Concert with Introductory Talk and Commentary by Dr. Holländer. Soloist: Alex Ovanova (Songs). Songs; Extracts from Das klagende Lied; Second Movement from Symphony No. 1 in D. **10.0,** See **Prague. 11.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Concert by the Small Station Orchestra, conducted by P. Leemans: Dutch Peasant Dances (Siep); Sous les tilleuls (Massenet); Au cabaret (Massenet); Flute Solo: Pan et les bergers (Mouquet); Two Pieces from the Album for the Young (Schumann); Le chant du berger (Lebrun); Bluets et coquelicots (Waldteufel); Bruyères (Debussy); Le chevrier (Gilson); Pastoral Suite (MacRamsay); Sous la haie fleurie (Sarly); Danse populaire (Sarly). **1.0 p.m.,** Le Journal Parlé. **1.10,** Old Music on Gramophone Records. **1.30,** Song Recital by Géo Van den Fontyne: La prière (de Boeck); Melody from Quo vadis (Nougnès); Le pas d'armes du roi Jean (Saint-Saëns). **1.45,** Gramophone Records (contd.). **5.0,** Concert by the Symphony Orchestra, conducted by J. Kumps: Danses villageoises (Grétry); Suite pastorale (Chabrier). **5.30,** Programme for Children. **6.5,** Literary Review. **6.15,** Concert arranged by the Young Catholics' Agricultural Society. **6.40,** Readings from the Works of Mignolet and Geradin. **6.45,** Extracts from The Messiah (Handel). **7.15,** Report of the Belgian Catholic Radio Society, and Cinema Review. **7.30,** Talk for Women. **8.0,** Concert by the Radio Orchestra, conducted by Franz André: March (Turina); Waltz, Donauwellen (Ivanovici); La Czarine (Ganne); Songs on Gramophone Records: Glow-worm Gavotte (Lincke); The Lancers' Quadrille (Metra); Le rêve passe (Krier). **8.45,** Talk on the Poet Virgil. **9.0,** Concert by the Symphony Orchestra, conducted by J. Kumps: Prélude à l'après-midi d'un faune (Debussy); Reading; The Pastoral Symphony (Beethoven). **10.0,** Le Journal Parlé. **10.10,** Request Gramophone Records: March (Benders); Spanish Serenade (Bizet); Selection from The Merry Peasant (Fall); Le Crucifix (Fauré); Invocation (Ganne); Turkish March for Harpsichord (Mozart); Waltz, La Nuit ensorcelée (Chopin); Symphony (Bach); Suite from Pulcinella (Stravinsky). **10.55,** Christus Vincit (Liszt).

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish. **12 Noon,** Gramophone Concert of Ballet Music: Ballet Music from: (a) Rosamunde (Schubert), (b) Samson and Delilah (Saint-Saëns), (c) Marouf (Rabaud), (d) La Gioconda (Ponchielli), (e) Coppélia (Delibes), (f) Hérodiade (Massenet). **1.0 p.m.,** Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans. Overture, Pique Dame (Suppé); Waltz, Verborgene Perlen (Ziehrer); Two Gramophone Records; Selection from Les mousquetaires au Convent (Varney); Guitare for Violin (Moszkovsky-Sarasate); Two Gramophone Records; Potpourri, Frühling im Wiener-wald (Ascher); Foxtrot, Dizzy Fingers (Confrey). **5.0,** Concert by the Radio Orchestra, conducted by Franz André: Overture, Orpheus in the Underworld (Offenbach); Waltz, Tales from the Vienna Woods (Joh. Strauss); Algerian Scene (Ketelbey); Melody (Manfred); Walzertrumpete (Robrecht); Extase (Ganne); Le hautbois soupire (Gervasio); Suite, Four Winds (Coates). **5.45,** Programme for Children. **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans: Italian March (Rousseau); The Emperor Waltz (Joh. Strauss); Gramophone Records: (a) Sweet Marie (Frankl), (b) Just like a Butterfly (Dixon); Russian Rhapsody, Svetlana (Weckler); Bells across the Meadow (Ketelbey); Gramophone Records: (a) In a little Spanish Town (Wayne), (b) Mary Lou (Lyman); Russian Dance No. 4 (Bullérian). **7.15,** Talk. **7.30,** Journal Parlé. **8.0,** Concert by the Symphony Orchestra, conducted by J. Kumps. Soloist: Nancy Vellar (Songs). Overture, Der Freischütz (Weber); Selection from Der Rosenkavalier (R. Strauss); Songs: (a) Zueignung (R. Strauss), (b) Ich trage meine Minne (R. Strauss), (c) Waldeinsamkeit (Reger), (d) An die Musik (Schubert); March from Sigurd Jorsalfar (Grieg); Popular Flemish Songs (Schoemacker); Four Songs; Ballet Music (Verdi). **9.0,** Menske—Radio Play (Belloy). **10.0,** Journal Parlé. **10.10,** Dance Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert of Light Music and Roumanian Music by the Motoi Orchestra. **6.0,** Radio Journal. **6.15,** Concert (contd.). **7.0,** Literary Talks. **7.15,** Time Signal. **8.0,** Concert of Light Music and Roumanian Music by the Station Orchestra. **8.30,** Musical Saw Solos by M. Calpert. **8.45,** Concert by the Station Orchestra (contd.). **9.45,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres from 7.45 p.m. to 12 Midnight.—6.10 p.m.,** French Lesson. **6.40,** Song and Pianoforte Recital by Elizabeth Gervay and Tibor Polgar. **7.15,** Talk. **7.45,** Concert by the Budapest Concert Orchestra, relayed from the Academy of Music. Conductor: Bruno Walter. Overture, A Midsummer Night's Dream (Mendelssohn); Pianoforte Concerto in D (Mozart); First Symphony (Mahler). **10.0,** News. **10.15,** Concert by the Karl Vores Cigány Band. **11.15,** Concert by the Arpad Toll Cigány Band, relayed from the Kovacsevits Restaurant.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 5 kW.—**12 Noon,** Time and Chimes from the Town Hall. **12.5 p.m.,** String Ensemble Concert relayed from the Hotel d'Angleterre. **2.0 to 3.0,** Interval. **3.0,** Concert by Mogens Hansen's Instrumental Ensemble: Overture, Youth and Madness (Dupuy); Waltz, Eulenelles (Waldteufel); Danza exotica (Mascagni); Tango (Lacôme); Selection from Scaramouche (Sibelius); Selection from The Land of Smiles (Lehár); Readings (Edith Rode); Overture, Die schöne Galathee (Suppé); Waltz from The Dollar Princess (Fall); Selection from Zigeunerprimas (Kálmán); Rondo for Two Clarinets and Strings (Crussel); Humoresque (Dvorak); March parisienne (Ganne). **5.0,** Programme for Children. **5.40,** Exchange and Fish Market Prices. **5.50,** Gardening Talk. **6.20,** German Lesson. **6.50,** Weather Forecast. **7.0,** News. **7.15,** Time Signal. **7.30,** Talk: Politics throughout the past Month. **8.0,** Chimes from the Town Hall. **8.5,** Concert of Old Danish Music by the Station Orchestra, conducted by Launy Grøndahl: Overture, Sovedrikken (Weyse); Contredanse (Dupuy-Nielsen); Selection from Gurre (Hartmann); Selection from Et Folkesagn (Gade); Prelude (Hartmann). **8.40,** Song Recital by Aase Thygesen. **8.55,** Talk: The Life of H. C. Andersen, with Readings from Diaries and Letters. **9.35,** Saxophone Solos by Winstrup Olesen: Humoresque (Thomsen); Waltz (Mathisen); I hear you calling me (Marshall); Canzonetta No. 2 (d'Ambrosio). **9.50,** Sonata in A, Op. 12, No. 2, for Violin and Pianoforte (Beethoven). **10.15,** News. **10.30,** Concert of Opera Music by the Station Orchestra, conducted by Launy Grøndahl: Overture, Masaniello (Auber); Waltz from Eugene Onegin (Tchaikovsky); Intermezzo from Cavalleria rusticana (Mascagni); Ballet Music from Aida (Verdi); Overture, Der Freischütz (Weber). **11.10,** Dance Music, relayed from the Wivex Restaurant. In the interval at **12 Midnight,** Time and Chimes from the Town Hall. **12.30 a.m. (Wednesday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,327 kc/s, 226 metres; 10 kW.—**12 Noon,** Military Music. **12.30 p.m.,** News. **12.45,** Sound Film Songs. **5.30 to 7.0,** Programme in English by the I.B.C., C. Danvers Walker, B. McNabb, and F. Lamming announcing. **5.30,** Concert for Torquay and Exeter Listeners: Orchestra, Reconciliation (Drigo); Song of the Flea (Mussorgsky);

When the King went Forth to War (Koenemann); Orchestra, Poem (Fihich); Pianoforte Solo, Rondo capriccioso (Mendelssohn); Il Bacio (Arditi); Villanelle; Pianoforte Solo, Minuet in G (Beethoven); Orchestra, On Wings of Song (Mendelssohn); Two Eyes of Grey (McGeogh); In the Gloaming (Harrisor); Orchestra, Babes in Toyland (Herbert). **6.15,** Concert for Plymouth and Devonport Listeners: Selection from Maritana (Wallace); Policeman's Holiday (Ewing); The Mill in the Black Forest (Eilenberg); Selection from Iolanthe (Sullivan); A Hunting Scene (Bucalossi); Glow Worm Idyll (Lincke); Ribbon Dance Hungarian Rhapsody (Liszt); National Emblem (Bagley); March, Stars and Stripes (Sousa); **10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music by the Ibcolians: Got a Date with an Angel; I'm happy when I'm hiking; Down Sunnyside Lane; Guilty; Hang out the Stars in Indiana; The Haunted House; Live, love and laugh; Belle of Barcelona; The Pied Piper of Hamelin; I'd rather be a Beggar with you; Say a little Prayer for me; June time is Love Time; Selection of Miracle Melodies; Just imagine; When it's Sunset on the Nile. **11.0,** Scottish Concert: The Glasgow Highlanders (arr. Diack); Songs: (a) A Border Ballad (Cowen), (b) March of the Cameron Men (Traditional); The Thistle (Myddleton); Songs: (a) Kirkcounel Lea (Traditional), (b) Ae fond Kiss (Traditional); Meg Merrilies (arr. Diack). **11.30,** Vocal and Orchestral Concert: Songs: (a) Boots (McCall), (b) Phil the Fluter's Ball (Percy French), (c) The Gay Highway (Drummond); Musical Comedy Switch (arr. Hall); Songs: (a) The Smuggler's Song (Mortimer), (b) The Yeoman's Wedding (Poniatowsky), (c) The Meynell Hunt (Cotton). **12 Midnight,** Club Concert for Bridgwater and Minehead Listeners: Dubinuschka Potpourri (arr. Alexander); Songs: (a) The Last Rose of Summer (Moore), (b) Down in the Forest (Landon Ronald); The Cuckoo Waltz (Jonasson); The Toymaker's Dream (Golden); Song: The Pipes of Pan (Monckton); That Tiny Teashop (Raymond); Bells across the Meadow (Ketelbey); Songs: (a) A Brown Bird singing (Haydn Wood), (b) I Think of you my Sweet (Haydn Wood); The Clock is playing (Blaauw); At the Temple Gates (Johnson). **1.0,** Music by a Hawaiian Band: Bye Bye Blues; Go home and tell your Mother (McHugh); Old New England Moon; With my Guitar and you (Snyder); Land of the might-have-been (Aderler); Lazy Louisiana Moon (Donaldson); Sleepy Head (Hackforth); Silvery Moon (Frazzini). **1.30,** Songs: Hollywood Nights; At the End of an Irish Lane; Hush-a-bye Baby; Selection from High Society Blues; Reach out for a Rainbow; My Irish Song of Songs; I wish I had died in my Cradle. **2.0,** Dance Music by the Ibcolians: The Sun has got his Hat on; When the Band goes marching by; Singin' in the Moonlight; It's that extra little Something; Paradise; Let me be your Carmen for To-night; Stranger; Let that be a Lesson to you; Leave the Rest to Old Man Moon; I've gone and lost my little Yo-Yo; Pagan Moon; The Gag Song; Sing a New Song; Same Old Moon. **2.57,** I.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—**4.30 p.m.** (from **Trier**), Orchestral Concert: Overture, Nebuchadnezzar (Verdi); Entr'acte and Ballet Music from Ali Baba (Cherubini); Spring Serenade (Lacombe); Waltz, Hochzeitsreiger (Bilse); Diavoletta (Lindemann); Selection from Undine (Lortzing); Waltz, Träume auf dem Ozean (Gungl); Puppe und Hampelmann (Siede); March, Hand in Hand (v. Blon). **6.0,** Talk: Bismarck—Personal Reminiscences by the Author, Hans Hoffmann. **6.25,** English Lesson. **6.50,** Time, Announcements, Weather and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** Song Recital by Luise Richartz (Contralto). **8.30,** Talk by Dr. Wagner. **9.0** till Close Down, See **Stuttgart.** In the interval at **10.15,** Time, News, Weather and Sports Notes. **12 Midnight,** Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 530 kc/s, 227.4 metres; Hanover, 1,319 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—**5.55 p.m.** (from **Hanover**), Scenes from Schiller's Dramas by Out-of-Work Actors. Scene IV, Act I, and Scene I, Act V from Wilhelm Tell; Scene V, Act I, and Scene IV, Act II from Kabale und Liebe. **6.45,** Exchange and Market Prices. **6.50,** Weather Forecast. **7.0,** Transmission for all German Station, relayed from **Berlin (Königs Wusterhausen). 8.0,** Concert by the Station Chamber Orchestra, conducted by Adolf Seeker. Soloist: Oscar Besenfdder (Songs to the Lute). Waltz, Die Schönbrunner (Lanner); Two Songs to the Lute: (a) Es war ein König an den Rhein, (b) Es wollte sich einschleichen ein kühles Lüftelein; Ballet Music from Rosamund (Schubert); Two Songs to the Lute: (a) Linen Weaver's Song, (b) Tailor's Song; Overture, Peter Schmoll (Weber); Two Songs to the Lute: (a) Heut' hab ich die Wacht allhier, (b) Hört ihr Herren und lasst euch sagen. **8.45,** De Dör nah buten—Three-Act Comedy in Dialect (Hans Balzer). **10.10,** Time, Weather, Announcements, Sports Results and Police Notes. **10.30,** Late Concert by the Hamburg Philharmonic Orchestra, conducted by José Eibenschütz: Overture, Rienzi (Wagner); Serenade in F, No. 2 (Volkmann); Selection from die toten Augen (d'Albert); Symphonie Poem, Tasso (Liszt); Dynamiden-Walzer (Jos. Strauss); Selection from The Gipsy Baron (Joh. Strauss); Polonaise in E (Liszt).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW., and **Danzig, 662 kc/s, 453.2 metres.**—**1.5 p.m.,** Gramophone Concert of Light Music. In an interval at **1.20,** Announcements. **2.30,** Programme arranged by the Post Office with Gramophone Records. **3.0,** Agricultural Prices and Exchange. **3.30,** Programme for Children. **4.0,** Concert by the Small Orag Orchestra, conducted by Eugen Wilcken. Homage March from Sigurd Jorsalfar (Grieg); Overture, Hamlet (E. Bach); Liebeswalzer (Maszkovsky); Selection from Das Nachtlager von Granada (Kreutzer); Dance Suite (Mraczek); Waltz, Die guten alten Zeiten (Jos. Strauss); Potpourri, Wiener Lieder (Komzak). **5.45,** Talk: Luther at the Diet of Worms. **6.15,** Agricultural Prices. **6.25,** Talk on the Confectionery Trade. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** See **Berlin (Witzleben).** In the interval at **8.45,** Play in Dialect. **10.15,** Weather, Announcements and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—**12.40 p.m.** till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). **12.40,** Concert by the Small V.A.R.A. Orchestra, conducted by P. Duchant: Overture, Raymond (Thomas); Scottish Songs (Bodewalt-Lampe); Feuilleton (Fucik); Humoresque (Dvorák); March, The Liberty Bell (Sousa); Romantic Waltz (Heinecke). **1.25,** Organ Recital by J. Jong. Petite suite de concert (Coleridge-Taylor); Melody (Lenoir); Die Spieluhr der Pompadour (Noack); Tee bei Maikäfern (Noack). **1.55,** Orchestral Concert (contd.): Selection from La Bohème (Puccini); Valse triste (Puccini); Selection from Der Juxbaron (Kollo); Waltz, Wo die Zitronen blüh'n (Joh. Strauss). **2.40,** Interval. **3.10,** Popular Music on Gramophone Records. **3.40,** Recitations. **4.10,** Concert by De Notenkrakers Orchestra. **5.25,** Programme for Children. **5.55,** Concert by De Fliereftuiters Orchestra, conducted by H. de Groot. Soloist: Esther Philipse (Songs). Uns kann keiner (Heymann); Von Liebe singen alle Geigen (Noack); When Sally left the Alley (Rose); Vibraphone (Löhr); Wie sag' ich es meinem Mann (Mackeben); Irgendwie (Stransky); Baby's pleading at Twilight (Lewis-Young); Kikeriki (Evans); Love is the Sweetest Thing (Noble); Old Father Thames (Wallace-O'Logen); Gramophone Records; Der Onkel aus Amerika (Rosen); Oft hab' ich vom Glück geträumt (Kálmán); China Town (Schwartz); Wir walzen (Kermbach); Dizzy Fingers (Confrey); I don't wanna go to Bed (Lupino); Fahrt ins Blaue (Dostal). **7.10,** Educational Talk. **7.40,** Talk on Music, Illustrated by Gramophone Records. **8.40,** Electioneering Address **9.10,** L'Arlésienne (Daudet) with Bizet's Music, by the V.A.R.A. Dramatic Society and V.A.R.A. Orchestra. **10.40,** News and Announcements. **10.55,** Concert by the V.A.R.A. Orchestra, conducted by H. de Groot. Overture, Le premier jour de bonheur (Auber); Selection from The Betrothal by Lanternlight (Offenbach); Marche joyeuse (Chabrier); Selection from Le train bleu (Milhaud); Selection from Oh Kay (Gershwin). **11.40,** Popular Music on Gramophone Records. **12.40 a.m. (Wednesday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**12.55 p.m.** till Close Down, Programme of the Catholic Radio Society (K.R.O.). **12.55,** Concert by the K.R.O. Sextet: Midnight in Montparnasse (Lindern); Buona Notte, schöne Signorina (Niederberger); Amorettenreigen (Fucik); Schumann Potpourri (Urbach); Sag mir Du! (Reisfeld); For You (Elliott); Gramophone Records: March, Olympia-Sieger (Kreuzberger); Selection from The Maid of the Black Forest (Jessel); Gipsy Song (Boldi); Song without Words (de Micheli); Das ist Wien (Stolz). **2.25,** Interval. **2.40,** Programme for Women. **3.40,** Song and Pianoforte Recital by Jo Hol (Soprano) and F. Boshart (Pianoforte). In an interval at **4.0,** Recitations. **4.40,** H.I.R.O. Programme. **5.50,** Concert by the K.R.O. Orchestra, conducted by J. Gerritsen: Overture, Die Abreise (d'Albert); Suite, Four Ways (Coates); Selection from L'Africaine (Meyerbeer); Toréador et Andalouse (Rubinstein); Grand Chromatic Gallop (Liszt); Airs (Joh. Strauss): (a) March, Deutschmeister, (b) Overture, The Arabian Nights, (c) Selection from Eine Nacht in Venedig, (d) Pizzicato Polka; A Strauss Bouquet (Winter). In an interval at **6.40,** Recitations. **7.45,** Concert relayed from **Budapest. 9.40,** Electoral Address. **9.55,** News. **10.0,** Concert by the Russia Ensemble, conducted by A. Doubatov: Russian Fantasia (Michalovsky); Andante cantabile (Tchaikovsky); Musizierende Zigeuner (Eilenberg); Russian Song; Selection from Countess Maritza (Kálmán); Romanian Melodies (Andrejev) Moonlight Variations (Litwinzev); Potpourri of Ukranian Melodies (Doubatov); Ej rechanem (Doubatov); Ukranian March (Doubatov); Humoresque (Dvorak); Kuyawiak (Wieniawsky); Potpourri, New Flower (Michalovsky); Als der König zog zu Feld (Köneman); Die beiden Grenadiere (Schumann); Russian Airs; The Renz Circus; Abendglocken; Der Kuckuck; Cossaek Dance Song; Frühlingserwachen (C. Bach); Hungarian Dances Nos. 5 and 6 (Brahms). **11.40,** News. **11.45,** Popular Music on Gramophone Records. **12.40 a.m. (Wednesday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News, and Exchange. **8.10,** Agricultural Talk. **8.20,** Programme to be announced. **8.35,** Radio Concert. **9.0,** Weather and News. **9.15,** Radio Concert. **9.45,** Dance Music from the Palais de la Méditerrannée. **12 Midnight to 1.0 a.m. (Wednesday),** Programme in English by the I.B.C., H. K. Hitchcock announcing: Merrymaker's Dance from Nell Gwynn (German); Les trésors de Colombine (Drigo); Violin Solos: (a) Le Balcon (St. Denis); Souvenir (Drdla); Liebestraume (Liszt); Pieces for Trio: (a) Serenata No. 2 (Toselli), (b) Chant sans Paroles (Tchaikosky); Country Dance from Nell Gwynn (German). **12.30 a.m.,** Concert: Berceuse (German); Song, The English Rose (German); Chorus, Carry me back to old Virginy; Duets: (a) Leeds owd Church, (b) The Keys of Heaven; Song, I attempt from Love's Sickness to fly (Purcell); Chorus, Way down yonder in the Cornfields; Orchestra, Shepherd's Dance from Henry VIII (German). **12.57,** I.B.C. Goodnight Melody. **1.0 a.m.,** Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0 p.m.,** Concert, conducted by Eysoldt: Overture in D Minor (Bruckner); Romantic Suite (Lautenschläger); Serenade from Don Juans letztes Abenteur (Graener); Sonnenmeer from the Suite Jubelnder Sommer (Leuschner); Symphonic Poem, Finlandia (Sibelius); Potpourri of Verdi Music (Rhode); Six Bravoura Variations on the Folk Song, Muss i denn zum Städtle hinaus (Kuümann); Selection from Prince Methuselah (Joh. Strauss). In the interval at **2.0,** News. **2.30,** Sponsored Programme with Gramophone Records. **3.30,** Exchange and Time Signal. **3.50,** Programme for Children. **4.20,** Notes on the Broadcasts to Schools. **4.30,** Concert of Marches and Waltzes, conducted by Wolf: March, Frühlingskinder (Blankenburg); Swabian Peasant Waltz (Krome); March, Deutscher Föhn (Hanfstangel); Waltz, Was der Wald erzählt (Zimmer); March, Schneidige Truppe (Lehnhardt); Waltz, Der Liebe Freud und Leid (Lindsay-Theimer); Bavarian March (Scherzer); Waltz, Die Schönbrunner (Lanner); March, Für Deutschlands Ehre (Friedemann); Waltz, Wiener Blut (Strauss); March, Fridericus Rex (Radecke). **5.45,** Review of Books on Germany. **6.5,** Talk: Purchasing Power and Unemployment. **6.25,** Italian Lesson. **6.45,** Weather, Time, Exchange and Sports Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** First General News. **8.5,** Concert. The Station Orchestra, conducted by Kühn. Soloists: Josef Witt (Tenor), Hans Wocke (Baritone), Egbert Grape (Pianoforte): Overture, Iphigenie in Aulis (Gluck): Ritter Gluck—a Reminiscence of the Year 1809 (E. T. A. Hoffmann); From Rococo to Biedermeier—Songs, Dances and Marches. **10.5,** News, Sports Notes and Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**4.30 p.m.,** Max von Schillings Concert, by the Dresden Philharmonic Orchestra, conducted by Theodor Blumer: Prelude to Act II of Ingwelde; Ballad, Jung Olaf; Symphonic Prologue to Oedipus Rex; Meeresgruss. **5.30,** Weather and Time. **5.50,** Exchange Quotations. **6.0,** Dialogue: A Visit to the Art and Industries Museum. **6.45,** The Leipzig Station informs its Listeners. . . . **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** Recital of Harp Duets. **8.35,** From the Rococo to the Biedermeier Period—Orchestral Concert. **10.5,** News Bulletin. **10.20** (approx.), Programme from **Langenberg. 12 Midnight** (approx.), Close Down.

LINZ.—See **Vienna.**

MADRID

ARANJUEZ, EAQ, 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** Concert of Popular Music. In the interval at **11.45,** Wireless Review. **12.30 a.m. (Wednesday),** Talk. **12.40,** Variety Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Radio Journal, and Request Gramophone Concert. **8.30** (in an interval), Talk by Joaquin Espana Cantos. **9.15,** News Bulletin and Political Review. **9.30 to 10.0,** Interval. **10.0,** Linguaphone English Lesson. **10.30,** Chimes, Time Signal, and Political Review. **10.45** (approx.), El Loro—Musical Comedy (Pittaluga). **12.45 a.m. (Wednesday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,367 kc/s, 263.8 metres; 11 kW.—**4.10 p.m.,** Concert of Popular Music by the Station Orchestra, conducted by J. Plichta. **5.10,** See **Prague. 5.30,** Light Music on Gramophone Records. **6.0,** Talk on Slovak Literature. **6.15,** See **Prague. 6.25,** See **Brno. 7.0,** See **Prague. 7.10,** Talk on Easter. **7.25,** Concert of Light Music by the Station Orchestra, conducted by J. Plichta. **8.0,** See **Brno. 9.0,** See **Prague. 9.20,** See **Brno. 10.0,** See **Prague. 11.0** (approx.), Close Down.

MOSCOW

Trades Union, 230 kc/s, 1,304 metres; 100 kW.—**6.30 p.m.,** Dance Music or Concert relayed from the Radic Theatre or the Conservatoire. **8.0,** Talk in Dutch. **9.0,** A Literary Programme in French. **9.30,** Programme Announcements. **9.55,** Announcements. **10.5,** Talk in Hungarian.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—**12 Noon,** Romance in F (Beethoven) by Willy Hübner (Violin) and Richard Staab (Pianoforte). **12.15 p.m.,** Gramophone Concert of Variety Music. **1.0,** Concert by Carlo Ranjtl and his Band: Overture, The Merry Wives of Windsor (Nicolai); Intermezzo, Liebesspiele (Ranftl); Selection from I Pagliacci (Leoncavallo); Paraphrase on Grün ist die Heide (Lange); Menuett-Walzer (Ranftl); March, Mit Eichenlaub und Schwertern (Blon). **2.0,** Time, Weather, Programme Announcements, News and Exchange. **3.5,** Programme for Women. **4.0,** Weather and Agricultural Notes. **4.10** (from **Nürnberg**), Talk: Nürnberg and Augsberg, the Oldest Garden Cities. **4.30,** Concert by Georg Lange and his Orchestra: Overture, Marinarella (Fucik); Song, Träume (Wagner); Selection from Der Rosenkavalier (R. Strauss); Waltz, Stunden, die wir nie vergessen (Gröschel); Potpourri, Servus Wien (Dostal); Grenadier March (Radecke); Flottenmarsch (Thiele). **5.35,** Radio Report on the Preparations for the Grand Firework Display for Hitler's Birthday in the Exhibition Park. **6.5,** Talk: Munich and Breslau, Bavaria and Silesia. **6.25,** Time, Weather and Agricultural Notes. **6.35,** Recital of Schumann's Songs from Goethe's Wilhelm Meister by Margot Leander (Soprano) and Emanuel Gianna (Baritone): Four Songs of Mignon: (a) Kennst du das Land, (b) Heiss mich nicht reden, (c) Nur wer die Sehnsucht kennt, (d) So lasst mich; Three Songs of the Harper: (a) Wer sich der Einsamkeit ergibt, (b) An die Türen will ich schleichen, (c) Wer nie sein Brot mit Tränen ass. **7.0,** Transmission for All German Stations, relawed from **Berlin (Königs Wusterhausen). 8.0** (from **Nürnberg**), Schrammel Trio Concert: Ernst August March (Blankenburg); Dornröschens Brautfahrt (Rhode); Potpourri, Aus froher Kinderzeit (Lübbe); Unter Hamburger Flagge (Pörschmann); Wiener Lied (Fiebrich); March, Unsere Jungens auf See Schenider). **8.35,** Talk: Pickpockets and their Methods.

8.55, Gunther Raphael Recital by the Composer (Pianoforte) and Josef Köhler ('Cello): Improvisations for Pianoforte, Op. 3; Sonata for 'Cello and Pianoforte, Op. 14. 9.20, How Nördlingen was built—a Discussion. 9.45, From the Rococo to the Biedermeier Period—Concert by a Chamber Orchestra. Soloists: Caroline Richtsfeld (Mezzo-Soprano) and Alfons Maier (Baritone). 10.20, Time, Weather, News and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—5.0 p.m., Orchestral Concert, relayed from **Stavanger, 1,247 kc/s, 240.6 metres.** 6.0, Talks for Housewives. 6.45, Accordion Solos by Aasmund Kristoffersen. 7.0, Announcements, Weather, and News. 7.30, Agricultural Talk. 8.0, Time Signal. 8.1, Talk. 8.30, Concert by the Station Orchestra, conducted by Hugo Kraumn: March, Fanfarenklänge (Fucik); Overture, Fatinitza (Suppé); Swedish Melodies (Sandell); Gavotte (Teilman); Dance of the Elves (Sigurd Lie); Selection from Marietta (Oscar Straus); Mimosa Waltz from The Geisha (Jones); Caucasian Dance (Rubinstein); Melody (Berger); Scottish Melody (Williams). 9.40, Weather and News. 10.0, Topical Talk. 10.13, Political Review. 10.45 (approx.). Close Down.

DSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—5.40 to 6.30 p.m., Popular Music on Gramophone Records. 8.0, Dopolavoro Announcements. Tourist Talk. Agricultural Notes and Giornale Radio. 8.20, Popular Music on Gramophone Records. 8.30 (in an interval), Time Signal and Announcements. 8.45, Relay from a Theatre. In the intervals: Talk, Announcements and News.

PARIS

EIFFEL TOWER, Call FLE, 207.6 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on 2,650 metres) at 10.26 a.m. and 11.26 p.m. (Preliminary and 6-dot Signals).—6.45 p.m., Theatre Review. 7.0, Le Journal Parlé. 8.20, Weather Report. 8.30, Miquette et sa mère—Comedy (de Flers and Caillavet).

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—6.45 p.m., Journal Parlé. 7.0, Sponsored Concert with Gramophone Records. 8.0, Film Notes. 8.5, Legal Talk. 8.15, Interval. 8.30, Concert by the Station Symphony Orchestra, André Pascal (Violin) and other Soloists. Conductor: Théodore Mathieu. Academic Festival Overture (Brahms); Concertino for Violin and Orchestra (André Pascal). Soloist: the Composer; L'Arlésienne (Büttel); Alleluia (Mozart); L'éclat de rire from Manon Lescaut (Auber). (b) Pour toi, Jane, Jane (Golestan); Dansez sur ma porte (Alessandrov); Fluersul (Sheletty); Concerto for Bassoon and Orchestra (Weber); Spanish Fantasia for Violin, 'Cello, and Orchestra (Maurice Franck); Fête polonaise from Le roi malgré lui (Chabrier). 10.30, News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Light Music on Gramophone Records. 8.0, Press Review and Weather. 12 Noon, Concert by the Krettly Orchestra. In the intervals at 1.0, Exchange, News and Weather, and at 1.30, Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.30, Gramophone Records: Vieux Airs limousins (Ronchard); Air gai (arr. Rummel); Tambourin (arr. Tiersot); Folk Songs: (a) Le retour du marin. (b) Le pauvre laboureur; Songs of Auvergne (arr. Canteloube): (a) Malheureux qui a une femme. (b) La fileuse. (c) L'antoine. 6.50, Theatre Review. 7.5, Talk on Art. 7.20, Concert by the Krettly Orchestra: Pastoral Suite; Berceuse and Minuet (Dequin); Chanson (Friml); Serenade (Defosse); Ravissement (Leduc). 7.45, Review of the Anglo-Saxon Press. 8.0, Variety Programme arranged by Paul Weill. 8.30, News and Weather. 8.40, Review by Pierre Scize. 8.45, Schumann Pianoforte Recital by Léon Kartun: Carnaval; Arabesque; Novelette No. 2. 9.15, Press Review and News. 9.30, Gramophone Concert: Selection from The Gipsy Princess (Kálman); Song from The Drum Major's Daughter (Offenbach); Song from Madame l'Archiduc (Offenbach); Barcarolle from The Tales of Hoffmann (Offenbach); Two Songs from Cibonlette (Hahn); Selection from Die Bajadere (Kálmán); Song from The Hollywood Revue; Evangeline (Jolson); Selection from Show of Shows; Ol' Man River, from Show Boat (Kern); The Pagan Love Song (Brown and Freed); Selection from The Gold Diggers of Broadway (Burke).

PORSGRUND.—See **Oslo.**

APRIL 18th TUESDAY *continued*

PRAGUE

G14 kc/s, 488.6 metres; 120 kW.—4.10 p.m., See **Moravská-Ostrava.** 5.10, Talk on Traffic Problems. 5.20, Czech and German Lesson. 5.50, Variety Music on Gramophone Records. 6.5, Market Prices. 6.15, Talk for Workers. 6.25, News in German. 6.30, German Transmission: A Historical Play (Franzel) and News. 7.0, Chimes and News. 7.10, Shorthand Lesson. 7.25, See **Moravská-Ostrava.** 8.0, See **Brno.** 9.0, Time Signal. 9.1, Folk Songs and Dances. 9.20, See **Brno.** 10.0, Time and News. 10.15, Concert of Contemporary Music by the Station Orchestra, conducted by Jeremias. Soloist: K. Reiner (Pianoforte): Overture to Verhaeren's Les Aubes (Nejedly); Concerto for Pianoforte and Orchestra, Op. 13 (Reiner). 11.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.: **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.**—6.0 p.m. (from **Lausanne**), Medical Talk. 6.30 (from **Geneva**), English Lesson. 7.0 (from **Lausanne**), Weather, News and Announcements. 7.20 (from **Geneva**), Answers to Correspondence. 7.30 (from **Geneva**), New Gramophone Records. 8.0 (from **Geneva**), Chamber Music: Quartet (Kaminsky); Quartet (Glazounov). 8.45 (from **Geneva**), Dramatic Programme. 9.10 (from **Geneva**), Concert by the Broadcasting Serenaders. 10.0, News and Weather. 10.15 (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.**—7.45 a.m., Gymnastics. 8.15 to 8.30, Giornale Radio and Announcements. 12.30 p.m., Weather and Light Music on Gramophone Records. 1.0 to 2.15, Orchestral Concert. In the interval from 1.30 to 1.45, Giornale Radio and Exchange. 4.45, Programme for Children. 5.10, Announcements. 5.15, Exchange and Giornale Radio. 5.30 to 6.15, Orchestral Concert: Overture, Fingal's Cave (Mendelssohn); Primo sogno (Ricciardi); Melody (Chwat); Selection from Lorelei (Catalani); Chiacchiere di comari (Limenta); A' femmena (de Curtis); Montagne russe (Restelli); Chant hindou (Rimsky-Korsakov); Excelsior (Marcheno); Burattini in marcia (Amandei). 7.0 (**Naples**), Shipping and Sports Notes. 7.10, Atmospheric Signals. 7.20, Giornale Radio, Agricultural and Dopolavoro Notes. 8.0, Time and Announcements. 8.2, Talk. 8.15, Schumann Song Recital by Margherita Cossa (Soprano): Du bist wie eine Blume; Widmung; Der Nussbaum; Ich grolle nicht. 8.30, Sports Notes and Tourist Report. 8.45, Concert. Soloists: Emilio Livi (Tenor) and Tito Rosati ('Cello). Quintet for Pianoforte, two Violins, Viola and 'Cello (Vittorio Giannini); Tenor Solos: (a) Aria from Linda di Chamounix (Donizetti). (b) Lament from L'Arlesiana (Cilea). (c) Aria from Werther (Massenet). (d) Serenade from I Pagliacci (Leoncavallo). 9.30, Return to the Past—A Comedy in One Act (Hugues Delorme). 10.0, Concert (contd.): 'Cello Solos: (a) Chanson triste (Tchaikovsky). (b) Czardas (Fischer). 10.15, Gramophone Records: (a) Overture, Le Roi d'Ys (Lalo). (b) En Bateau (Debussy). (c) Scherzo from A Midsummer Night's Dream (Mendelssohn). (d) Wedding Day on Troldhaugen (Grieg). (e) Prayer from Mosè (Rossini). (f) Prelude to Susanna's Secret (Wolf-Ferrari). 10.55, News Bulletin.

SALZBURG.—See **Vienna.**

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—6.20 p.m. (from **Zürich**), Talk. 7.0, Time and Weather. 7.2 (from **Berne**), Notes on the Broadcasts for Schools. 7.15 (from **Berne**), Talk for Women. 7.45 (from **Berne**), Concert of Light Music by the Berne Municipal Orchestra. 8.20 (from **Zürich**), Concert by the Radio Orchestra. 8.35 (from **Berne**), Dafnis—Lyrical Portrait from the Seventeenth Century after Poems by Arno Holz, Music arranged by Ernst Duis. 9.15 (from **Zürich**), Concert by the Radio Orchestra. 9.30, Weather and News. 9.40 (from **Berne**), Extracts from Dreigroschenoper (Weill) on Gramophone Records. 10.5 (from **Berne**), An Excursion with the Microphone. 10.20 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Horby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—4.45 p.m., Shorthand Lesson. 5.5, Songs and Recitations by Martin Koch and Paul Lindh, relayed from **Falun, 977 kc/s (307 metres).** 5.45, Popular Music on Gramophone Records. 6.45, Elementary French Lesson, relayed from **Malmö, 1,301 kc/s (231 metres).** 7.15, Weather and News. 7.30, Talk on the League of Nations. 8.0, Recital of Swedish Folk Songs by Ingeborg Eklöf. 8.15, Literary Review. 8.45, Carmen—a Parody on Bizet's Opera. 9.45, Weather and News. 10.0, Orchestral Concert of Swedish Music. 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.30 a.m., Russian Music on Gramophone Records. 12 Noon, Orchestral Concert, conducted by M. de Villars. Part I: Bizet Music: Overture, Patrie; Selection from The Fair Maid of Perth; Selection from The Pearl Fishers; Selection from Carmen. 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Concert (contd.). Part II: Overture, Heimkehr aus der Fremde (Meindelssohn); Ballet Music from The Prophet (Meyerbeer); Selection from Tiefland (d'Albert); Suite (Capu); Racoczy March (arr. Salabert). 2.0 to 4.45, Interval. 4.45, Talk: The Towns on the Charante. 5.0, Dance Music, conducted by Roskam. 6.0, Talk on History. 6.15, Topical Talk. 6.30, Concert, conducted by M. de Villers: Overture, Euryanthe (Weber); Symphonic Fragments from Philemon and Baucis (Gounod); Suite pittoresque (Fourdrain); Selection from Manon Lescaut (Puccini); Elegy for 'Cello and Orchestra (Rhené-Baton); Marche parisienne (Ganne). 7.30, Time and News. 7.45, Suppé Concert on Gramophone Records. 8.15, Press Review in German, Lottery Results, and Announcements. 8.30, Dramatic Programme, relayed from **Paris (Eiffel Tower).** After the Relay, Press Review.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.: and **Freiburg, 527 kc/s, 570 metres.**—12 Noon, Gramophone Concert of German Opera Music. 1.15 p.m., Time, News, Weather, and Programme Announcements. 1.30, Concert from Langenburg. 2.0, Programme arranged by the Post Office, with Gramophone Records. 2.30, Advanced English Lesson. 3.0, Talk on Flowers. 3.30, Talk for Women: Sending your child to School. 4.0, Spring Songs by German Composers—Recital by Hede Kraft (Soprano). 4.30, See **Frankfurt.** 5.45, Time, Weather, and Agricultural Prices. 6.0, Radio Report from **Vöhrenbach.** 6.25, See **Frankfurt.** 6.50, Time and News. 7.0, Transmission for all German Stations, relayed from **Berlin (Konigs Wusterhausen).** 8.0 (from **Mannheim**), Variety Programme in Dialect. 9.0, Concert by the Stuttgart Philharmonic Orchestra, conducted by Otto Frack: Overture, The Merry Wives of Windsor (Nicolai); Concerto in G Minor for 'Cello and Orchestra (Urack); Suite, Blumenwunder (Künnecke); Altbayrische Spiel- und Tanzmusik (Pachernegg); Waltz Dynamiden, Op. 173 (Joh. Strauss). 10.15, Time, News, Weather, and Programme Announcements. 10.35 (from **Karlsruhe**), Flute Recital. 11.0, Serenade by the Dance Ensemble of the Stuttgart Philharmonic Orchestra and Soloists. 12 Midnight, Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Orchestral Music. 6.30, Selection from Operettas. 6.45, Selection from The Three-Cornered Hat (Falla) by a Symphony Orchestra. 7.0, Opera Music: Selection from: (a) The Magic Flute (Mozart). (b) Il Trovatore (Verdi). (c) The Prophet (Meyerbeer). (d) Herodiade (Massenet). 7.15, Racing Results, Market Prices, and News. 7.25, Local News Bulletin. 7.30, Accordion Music. 7.45, Military Music. 8.0, Opera Music: Arias from: (a) The Magic Flute (Mozart). (b) Signrd (Reyer). (c) L'Attaque du Monlin (Bruneau). 8.15, Instrumental Solos. 8.30, Balalaika Music and Russian Songs. 8.45, Sound Film Music. 9.0, Concert by the Toulouse Symphony Orchestra, conducted by M. Tartanac. Suite, Les Pyrénées (Lacome); Overture, La Princess Jaune (Saint Saëns); Suite (Florent Schmitt); Slow Waltz (Tartanac); Suite, Gitaneries (Razigade); Waltz (Métra); Selection from Girodle Girofla (Lecocq). In the interval, Light Music. 10.0, Accordion Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco. 11.0, Choral Music. 11.15, Jazz Music. 11.30 to 12 Midnight, Programme in English by the I.B.C., W. Brown Constable announcing. 11.30, Military Band Concert: March, The Empire (Tulip); Overture, Raymond (Thomas); Gaiety Echoes (arr. Godfrey); Descriptive Piece, Review of the Troops; March, The Mad Major (Alford). 11.57, I.B.C. Goodnight Melody. 12 Midnight, News, Weather, and Announcements. 12.5 a.m. (Wednesday), Orchestral Concert. 12.30 (approx), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—5.15 p.m. till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 900 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—5.15 to 6.0 p.m., Dance Music from the Savoia, Milan. 6.35, Giornale Radio, Agricultural and Dopolavoro Notes. 7.0, Time, Report of the Royal Geographical Society and Gramophone Records of Light Music. 7.20, Giornale Radio. 7.45, Gramophone Records (contd.). 8.0, Announcements, Giornale Radio, Weather, and Light Music on Gramophone Records. 8.30, Talk. 8.45, Variety Programme. 9.45 Talk. 10.0, Orchestral Concert. 11.0, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and **5,990 kc/s, 50.26 metres (Evening);** 10 kW.—11.0 to 11.15 a.m., Religious Information in English. 8.0 to 8.15 p.m., Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,076 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—3.20 p.m., Recital for 'Cello and Viola da Gamba: Concerto in G Minor for Viola da Gamba (Handel); Suite for 'Cello (de Fesch); Suite for Viola da Gamba (Caix d'Hervelois). 3.50, Talk: German Drawings from the Fourteenth to the Seventeenth Centuries—in connection with the Exhibition in the Albertina. 4.5, Talk: What everybody should know about Traffic Regulations. 4.20, Talk. 4.50, Orchestral Concert: Overture, Chal Romano (Ketelbey); Waltz Suite (Gadringer); Selection from Dalibor (Smetana); German Dances (Schubert); Second Movement from the Violin Concerto in D Minor (Wieniawsky); Two Hungarian Dances (Körke); Harlequinade (Wacek); Potpourri, Das treue deutsche Herz (Weninger). 6.5, Talk on Fruit Growing. 6.30, Talk: A Newly Discovered Art—Old and New Gobelin Tapestries. 6.55, French Lesson. 7.20, Time, Weather and Programme Announcements. 7.30, Song Recital. 8.5, Brahms Concert, relayed from the Musikvereinsaal. The Vienna State Opera Chorus with Lotte Lehmann (Soprano). Conductors: Clemens Krauss and Ferdinand Grossmann. Songs for Six Part Choir: (a) Abendständchen. (b) Vinetta; Songs for Women's Voices, Harp and two Horns: (a) Es tönt ein voller Harfenklang. (b) Komm herbei Tod. (c) Wohin ich geh' und schaue; German Folk Songs: (a) Mit Lust tät ich ausreiten. (b) In stiller Nacht. (c) Die Wollust in der Maien; Motet from the Fifty-first Psalm; Gipsy Songs by Lotte Lehmann, with Clemens Krauss at the Pianoforte: (a) Himmel strahlt so helle. (b) Rote Rosen sprossen. (c) Brennessel steht am Wegesrand. (d) Liebe Schwalbe; Two Songs by Lotte Lehmann: (a) Leise Töne der Brust. (b) Ruh'n sie? ruft das Horn; Songs of Praise: (a) Unsere Väter hofften auf dich. (b) Wenn ein starker Gewappneter. (c) Wo ist ein so herrlich Volk. 9.45, News and Weather. 10.0, Concert from the Grabencafé.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.57 a.m., Time Signal and Fanfare from the Tower of Our Lady's Church, Cracow. 12.5 p.m., Programme Announcements. 12.10, Light Music on Gramophone Records. 1.20, Weather Forecast. 1.25 to 3.10, Interval. 3.10, Announcements. 3.15, Economic Notes. 3.25, Aviation Report and Anti-Gas Drill. 3.30, Announcements. 3.35, Book Review. 3.50, Popular Music on Gramophone Records. 4.20, Talk on History. 4.40, Talk on Bergson's latest Philosophical Work, relayed from **Lwow (788 kc/s, 381 metres).** 5.0, Concert by the Warsaw Philharmonic Orchestra, conducted by Fitelberg. Soloist, Koszelinski (Violin). Symphonie classique (Prokofiev); Spanish Symphony for Violin and Pianoforte (Lalo); Prelude to In Portugal (Massi-Hardman). 5.50, Programme Announcements. 6.0, Talk on Biology. 6.20, News. 6.25, Light Music from the Gastronomia Café. 7.0, Miscellaneous Items. 7.20, Agricultural Notes. 7.30, Music. Talk. 7.45, Radio Journal. 8.0, Concert by the Station String Orchestra, conducted by Oziminski: Serenade, Eine kleine Nachtmusik (Mozart); Serenade (Karlowicz); Three Norwegian Melodies (Grieg); Serenade (Tchaikovsky). 9.0, Sports Notes. 9.15, Radio Journal. 9.20, Violin Recital by I. Weissenberger: Chaconne (Vivaldi); Fugue (Tartini-Kreisler); Grave (Friedemann-Bach-Kreisler); Nocturne (Chopin-Kreisler); Mazurka (Tor Aulin); Berceuse (Fauré); La Capricieuse (Elgar). 10.0, Reading. 10.15, Dance Music from the Hala Café. 10.55, Weather Report and Police Notes. 11.0, Dance Music from the Bodega Dance Hall.

ZURICH.—See **Schweizerischer Landessender.**

Foreign Programmes continued on page XIII.

PROGRAMMES CONTINUED

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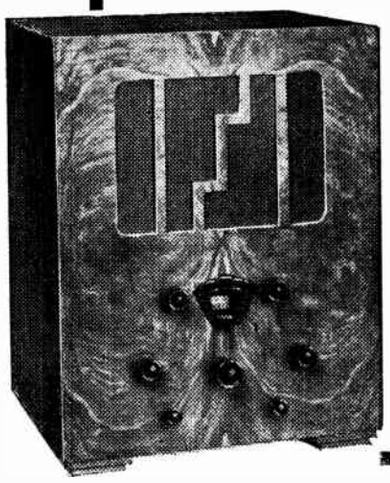

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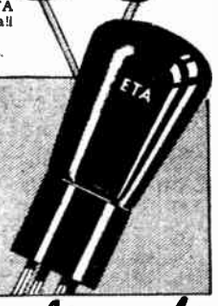

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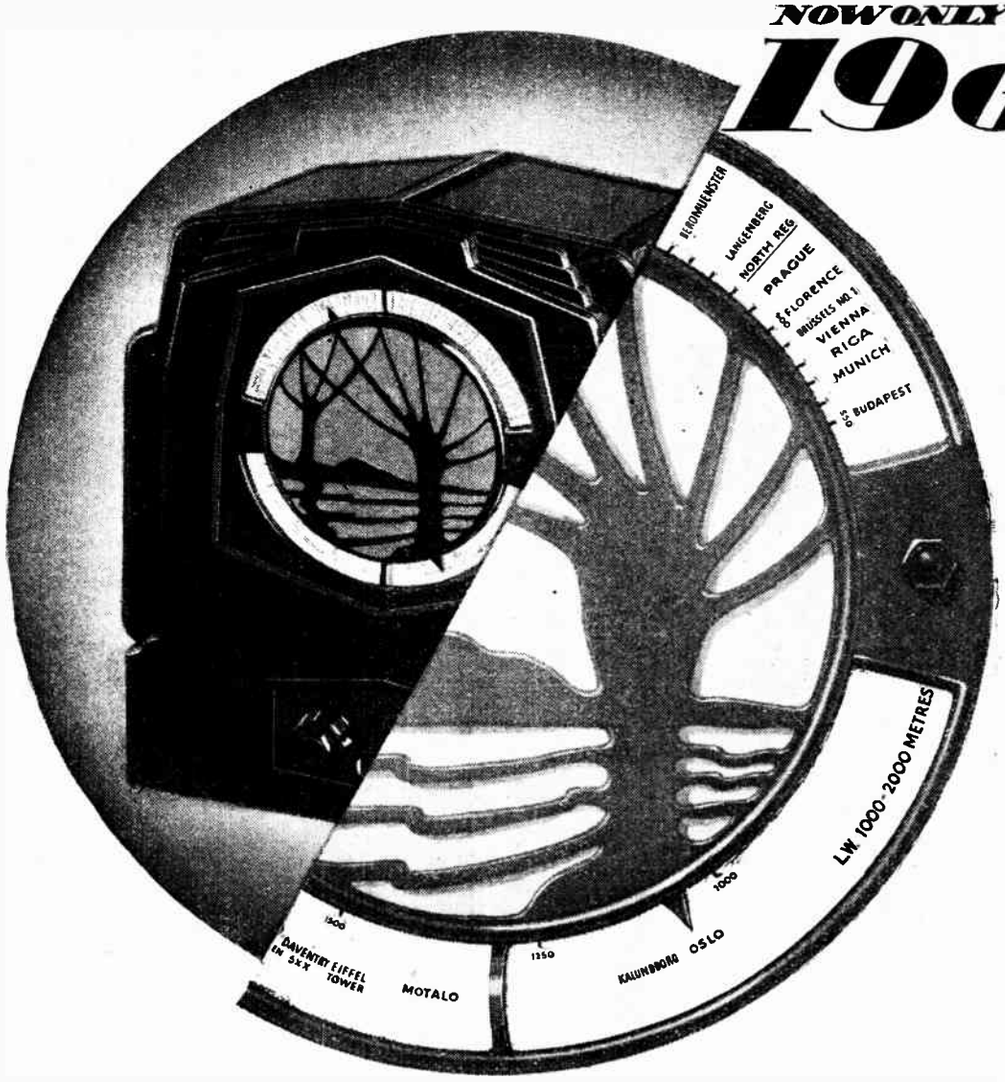

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EDITORIAL COMMENT

Television and the B.B.C.

A Responsibility to the Public

IN the early days before broadcasting in this country began the Postmaster-General made a public statement that he would not be prepared to grant facilities for regular broadcast transmissions until he was satisfied that there would be nothing in the nature of a monopoly for the supply of wireless receiving sets, but that equal facilities would be available to manufacturers. There is no doubt that at that time the Postmaster-General envisaged the possibility of a patent situation which might give to one company exclusive rights to supply sets for broadcast reception. We have always believed that it was because of this attitude adopted by the Postmaster-General that the Marconi Company, then owning most of the patents of importance, granted licences subject to the payment of royalties under their patents, without discrimination, to any *bona fide* manufacturer.

Television is not yet to be regarded as of more than great experimental interest, but progress has been made and it seems probable that before long sufficient development will have taken place for the B.B.C. to treat television as a part of their regular programme service. There are several rival systems for television transmission, most of which require the employment of distinctive apparatus at the receiving end, that is to say, the receiver and transmitting system are interdependent and are not universal in application, as is the case with sound broadcast apparatus. Television transmissions, irrespective of the system employed, could be "coded" in most cases in such a way that only apparatus using a particular patented arrangement could receive them. The B.B.C. ought not to countenance a monopoly which might be created in this way unless the coding system is in itself a technical essential, in which case a general licence to manufacturers should be granted on reasonable terms for the construction of receiving apparatus. When the time comes, therefore, for the B.B.C. to select one or more systems for regular broadcasting transmissions, we hope that the Postmaster-General will again recognise the importance of guarding against an exclusive monopoly in the hands of any one manufacturer. The principle which was fair in application when broadcasting began will be found equally just when television reaches the stage where it becomes a public service.

Summer Time

Effect on Distant Reception

SUMMER Time is with us again, but whereas in the past we have become accustomed to expect to have to forgo the enjoyment of foreign listening, in general, until a later hour in the evening. But to-day, although after dark the smaller stations come in at much greater strength, good reception is obtainable in daylight with quite unambitious receivers, and programmes of most of the bigger Continental stations can be enjoyed.

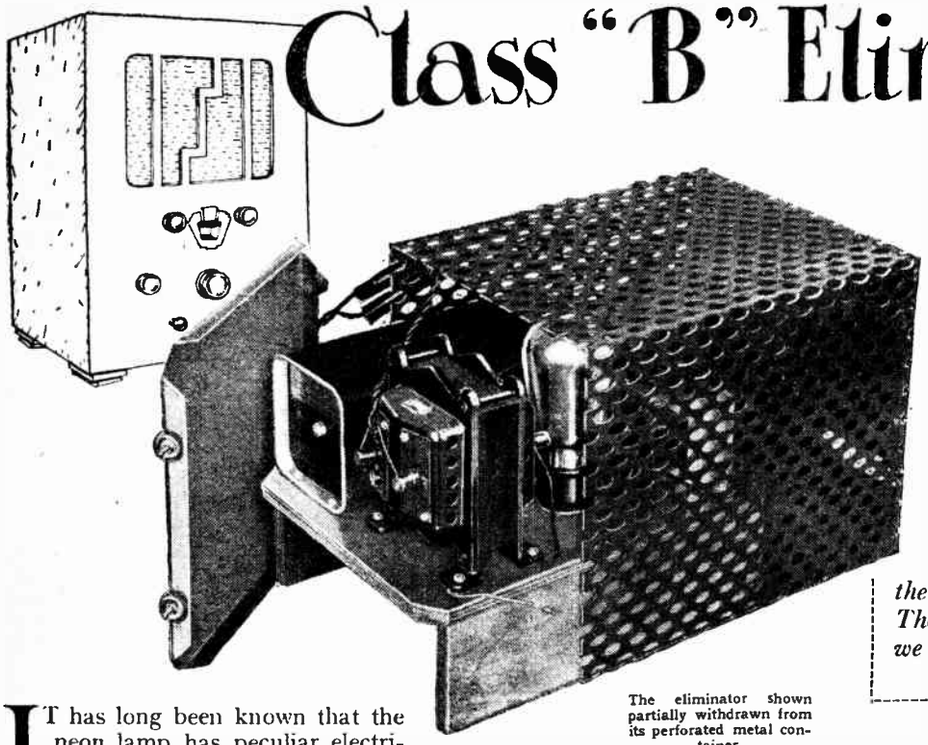
Two factors have contributed to bring about this change; the power of many of the Continental stations has increased so substantially during the past twelve months that they have become comparable to local stations, and the average efficiency of receivers is much higher. It would seem, therefore, that we can look forward to satisfactory reception throughout the summer of a wide selection of foreign programmes.

Class "B" Eliminator

H.T. Unit with Constant Voltage Output Embodying the New Neon Stabiliser

By W. I. G. PAGE, B.Sc.

CONSTRUCTIONAL details are given in the accompanying article of an H.T. eliminator for A.C. mains for use with receivers embodying the new Class "B" amplifier. Almost perfect voltage regulation is obtained by the employment of a new neon stabiliser with which there is a voltage change of only seven when the total load of the receiver varies between 5 and 45 mA. The stabiliser used is an advanced sample, but we understand that the production model gives an even better regulation curve.



The eliminator shown partially withdrawn from its perforated metal container.

IT has long been known that the neon lamp has peculiar electrical properties. Its apparent variation of resistance when different voltages are applied to it has prompted scientists to use it as a stabiliser in wireless circuits. As long ago as August, 1929, S. O. Pearson[1] showed that considerable liberties could be taken with the decoupling scheme of an ambitious receiver if a neon tube were shunted across the output of the mains supply unit. Meanwhile, however, great improvements have been made in all-mains equipment, and very little attention has been paid to stabilisers until to-day.

With the advent of Class "B" and Q.P.P. amplification it is a matter of some difficulty to design an eliminator which will give anything like a constant applied voltage to the anode of the valves when the total anode current varies according to the signal strength—between, say, 5 and 45 mA. It is only necessary to look at the regulation curves of the smoothed outputs of various mains rectifiers available at the present time. When the D.C. milliampere load is changed between the above limits the D.C. volts output may vary as much as 200, and it is only by using a small portion of the regulation curve of a heavy duty rectifier—a somewhat wasteful process—that this figure can be appreciably reduced.

Class "B" amplification has so far been applied only to battery sets, but there is already a demand for a suitable A.C. eliminator, and it has been left to A. C. Cossor, Limited, to produce a special neon stabiliser, which causes the regulation of any of the standard rectifiers to become almost perfect. With the stabiliser in circuit in the eliminator about to be described, the voltage output changes only by 7 with a load variation between 5 and 45 mA.; without the stabiliser the voltage change is about 200. The designer thus has at his disposal a means of providing an almost constant voltage from a comparatively high resistance source irrespective of the load.

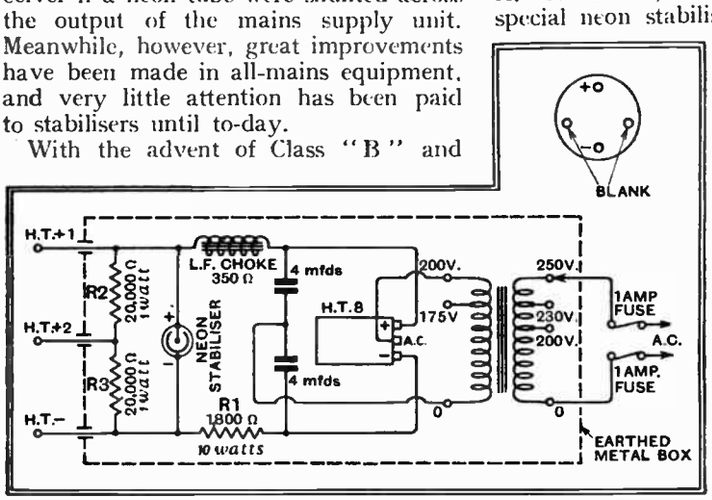
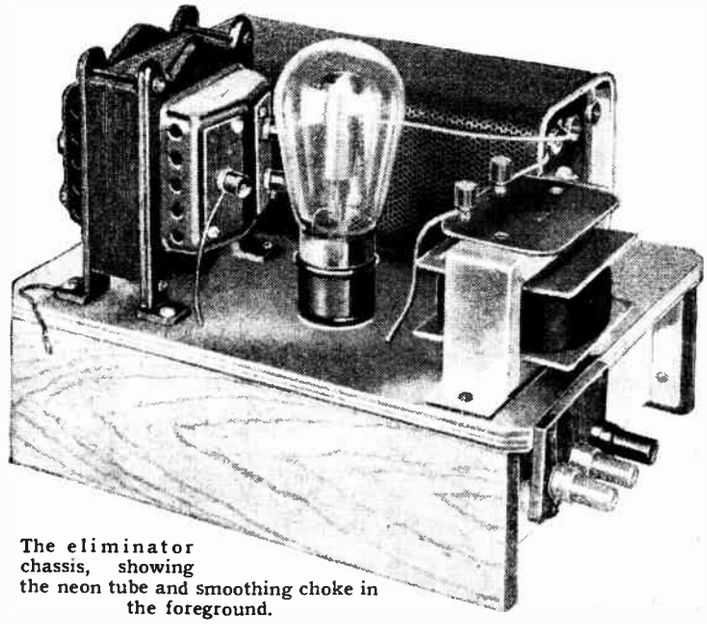


Fig. 1.—Circuit diagram. The connections of the base of the neon stabiliser are shown inset.

The action of the neon tube is interesting, for to all intents and purposes it behaves as a floating battery of high resistance. Now it is well known that a floating battery acts as an excellent smoothing device; we can, therefore, replace the usual 4 mfd. condenser after the smoothing choke by the neon lamp, and we shall be rewarded with an equivalent of some 20 mfds. Apart, therefore, from its propensities as a voltage regulator, the stabiliser assists tremendously in giving a hum-free supply. The equivalent voltage of the fictitious battery representing the neon tube is about 100 and its resistance about 270 ohms, so that when the regulation of the circuit is plotted it will be seen why the voltage output is almost constant for varying loads.

To restrict the total output of the eliminator to 60 mA.—a current drain which is not likely to be reached during the peaks in any battery Class "B" receiver—a resistance R1 or 1,800 ohms must be included in the smoothing circuit.



The eliminator chassis, showing the neon tube and smoothing choke in the foreground.

[1] "The Neon Lamp as a Stabiliser," August 28th and September 4th, 1929.

Class "B" Eliminator—

Together with the D.C. resistance of the choke, the added resistance to the smoothing circuit is, therefore, 2,100 to 2,200 ohms.

It will be assumed that the eliminator is to be used with "The Class 'B' Ferrocart" Receiver described in last week's issue, although with minor changes it could be used with almost any Class "B" or Q.P.P. set. Terminal H.T.+1 will deliver about 130 volts to the anodes of the valves, irrespective of whether the current being drawn is 5 or 45 mA., and from H.T.+2 the screening grid of the variable-mu valve will receive 60-70 volts. When the set requires only 10 mA. for a weak signal the neon stabiliser takes 50 mA., and when a current of 45 mA. for the maximum signal is wanted the stabiliser takes but 15mA. Thus the sum of the currents from stabiliser and set is always 60 mA. It is interesting to watch the needle of a milliammeter joined in circuit at X (see Fig. 2), which, of course, registers the total current taken by the receiver, the potentiometer for H.T.+2 and the stabiliser. The reading remains almost steady at 60 mA., the greatest deviation from this figure being 59 to 61 mA. from no signal to full volume.

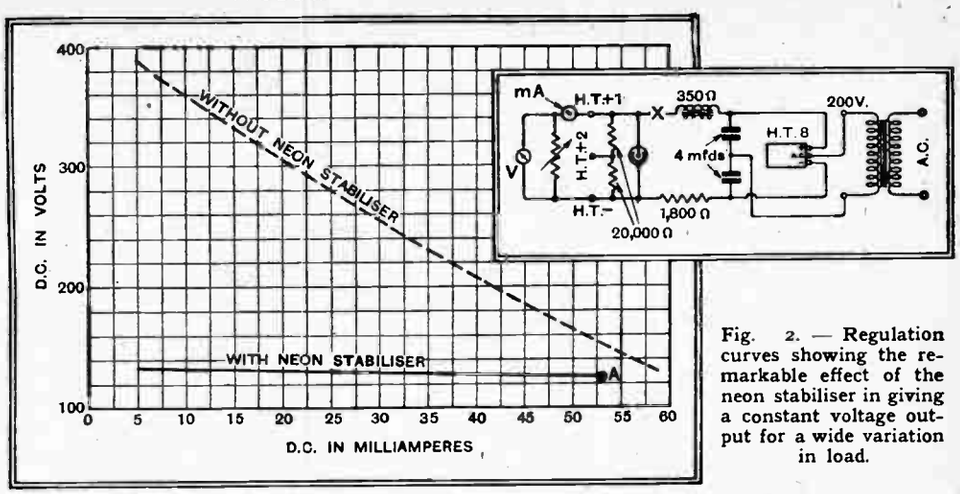
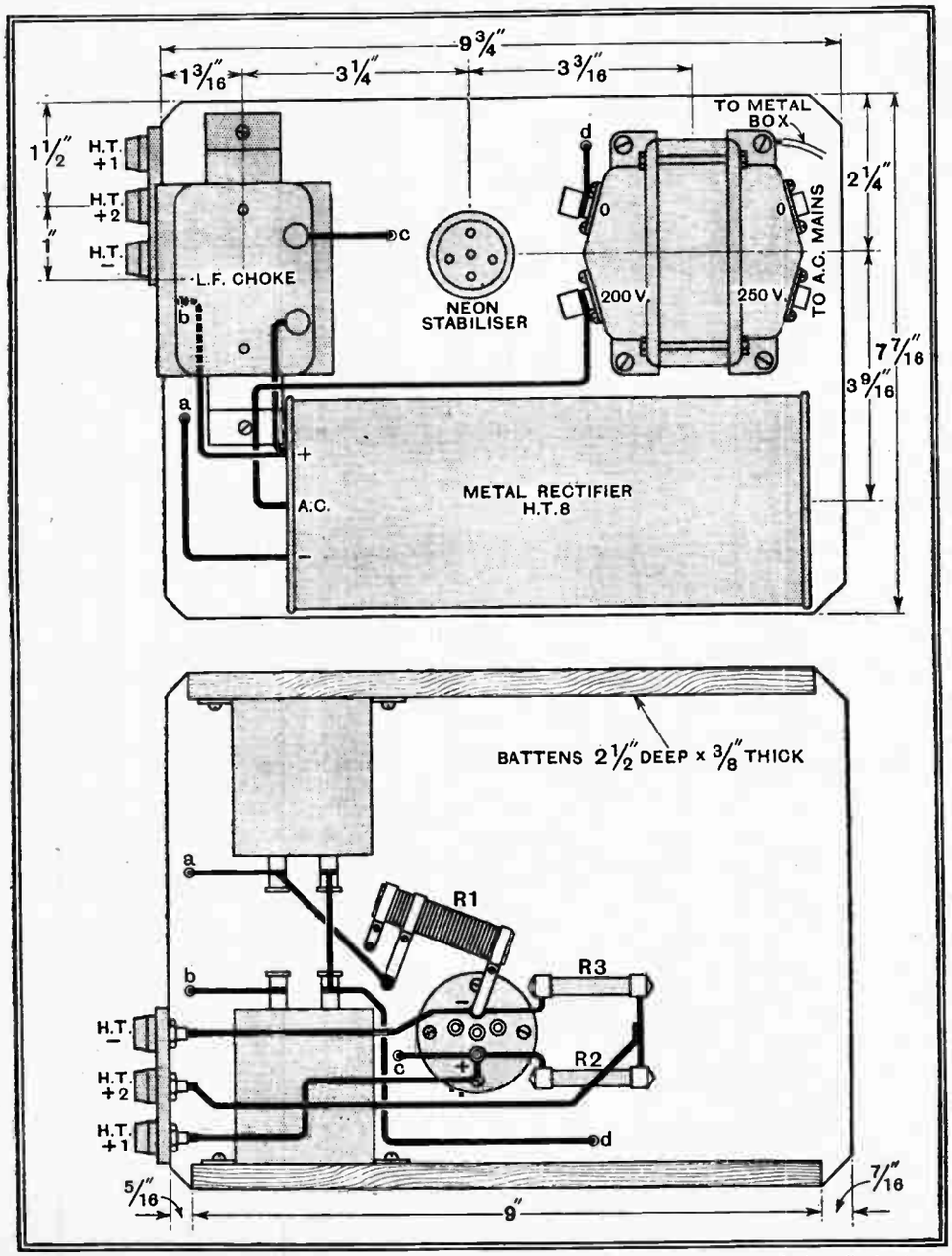


Fig. 2. — Regulation curves showing the remarkable effect of the neon stabiliser in giving a constant voltage output for a wide variation in load.

Regulation curves of the eliminator, with and without the neon tube, using the circuit shown inset, have been taken, and are given in Fig. 2. The effect of the stabiliser is remarkable, and it is only with a device of this kind that a receiver imposing widely varying loads can hope to give really distortionless results. It is interesting to note that should the receiver load exceed 53 mA. (the point A)—which only results from gross overloading—the neon tube is extinguished and the stabilising effect ceases.

It must not be inferred that the regulation of the rectifier used in the eliminator is poor; this is far from the case, for the characteristic compares favourably with other rectifiers, and is entirely satisfactory for the type of receiver for which it was designed—that in which the mean current hardly varies at all with the signal. Moreover, it is fair to point out that the steepness of the curve, in the case without the neon lamp, is somewhat aggravated by the presence of R1.

The eliminator is built upon a metal-covered baseboard, and the whole is housed inside a perforated-metal container which fits snugly into the space occupied by the H.T. battery in "The Class 'B' Ferrocart" Receiver. The container and the covering to the baseboard are earthed to the receiver "earth" terminal, and the H.T.− wander plug of the receiver is taken to H.T.− of the eliminator. A separate bias battery will be needed, which can be held in clips under the central wooden partition in the receiver cabinet. The positive terminal of this battery must be connected to the contact of S3 (in the receiver) to which H.T.− is already joined.



General wiring plan and layout of components. The H.T. minus connection of the eliminator must not be earthed. Two one-ampere fuses are connected in the mains leads.

LIST OF PARTS

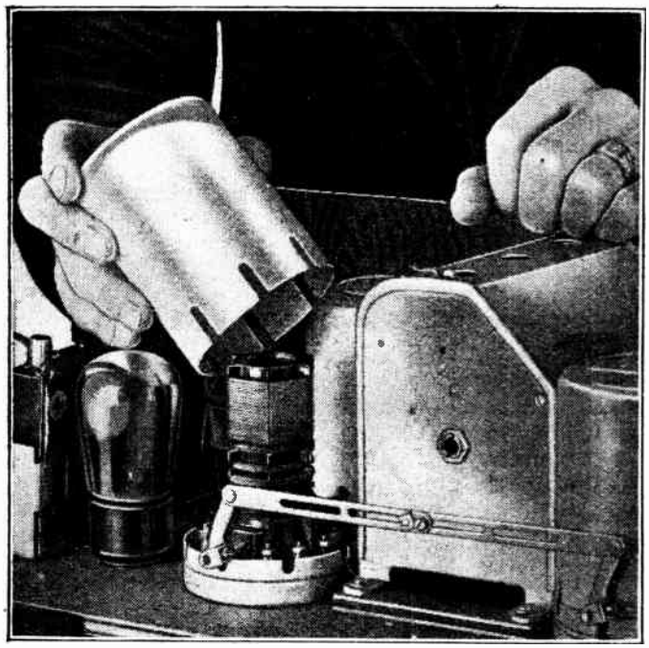
1 Neon stabiliser	Cossor Type S.13C
1 Metal rectifier	Westinghouse H.T.8
1 Mains transformer	Heayberd W.30
1 L.F. choke	Trix C.55
2 Fixed condensers, 4mfd., 1,500 v. D.C. test	Peak
2 Metallised resistances, 20,000 ohms, 1 watt, R2, R3	Dubilier
1 Resistance, 2,500 ohms, tapped at 1,800 ohms, 10 watts, R1	Dubilier "Spirohm"
1 Valveholder, 5-pin	Clix Chassis Mounting Type
2 Fuses, 1 amp., for flexible leads	Belling Lee No. 1037
1 Grid-bias battery, 16½ volts	
1 pr. Grid-bias battery clips	Gripso
3 Mains plugs and sockets, complete with bushes	Clix
Plymax baseboard, 10in. x 7½in. x ¾in., and battens and bracket for plug sockets	Peto-Scott
1 Perforated metal box	Peto-Scott
Systoflex, wire, flex, etc.	
Wood Screws: 2BA, ¾in., No. 4 R/hd.	

SCREENING—*Effective and Ineffective*

How to Obtain Stable High-Frequency Amplification

By M. G. SCROGGIE, B.Sc., A.M.I.E.E.

THE receiver which has the greatest mass of metal bestowed on it and around it is not necessarily the best screened. The necessity for some kind of screening grows increasingly important with developments in high-frequency amplification. There are always electric and magnetic fields to be considered, and the ineffective results of indiscriminate methods of screening are explained.



A typical modern screened H.F. stage.

THE most manifest difference between a receiver of to-day and one of the past is that each part of the former is encased in metal, a characteristic almost totally lacking in the latter. Even an unmechanically minded person is probably capable of perceiving that this selection of material is not in all cases based upon considerations of mechanical strength (although it is true that the transport systems of the country are such as to justify the choice for chassis and supporting parts). Most of the metal is wholly or partly for "screening." Why is screening necessary?

If an amplifier has an amplification of 10, and one tenth of the output finds its way back to the input, it upsets it very badly and may cause continuous oscillation. This is the process when a reaction coil is used to couple the anode circuit of a valve to the grid circuit to get intentional oscillation. If the amplification is very large, coupling between the components at a considerable distance is enough to cause oscillation.

In a modern set the power amplification from aerial to loud speaker may run into billions, and distance alone is not sufficient to prevent coupling between parts carrying high power and those of low power, for it is not practicable to build sets with all the components spaced many yards from one another.

Fortunately coupling does not necessarily cause undesired oscillation; by changing the frequency of amplification it may be possible to stop off one section of the set from another; this is done once in a "straight" set, and twice in the usual type of superhet. In spite of this restriction, any modern sensitive receiver would burst into uncontrollable oscillation if a certain amount of electrical screening were not resorted to in order to prevent adjacent parts from coupling.

The Invisible Link

Further inspection of our modern receiver might lead to the conclusion that in order to screen one part from another it is enough to enclose it in metal. Judging from things that one sees from time to time, this certainly seems to be the impression of some designers. But such a golden rule is too simple to be true, and is liable to lead one badly astray.

To begin with, it is necessary to discriminate very clearly between electric and magnetic screening. As both electric and magnetic fields exist together they are liable to be confused. (The *field* is the invisible link that constitutes the coupling; a fire may be said to have a thermal field which reaches across space between the flames and the cat on the hearthrug, and is detected by the latter.) It is convenient to remember that the electric field is associated with volts, and the magnetic with amps.

A coil of any sort depends for its action on the current flowing round it, and there is an intense magnetic field within it which decreases in strength at greater distances. Anything brought near an unscreened coil or condenser tends to change the distribution of the field and so alter the inductance or capacity, and hence the tuning. Leads from one part to another carry current and also vary periodically in voltage, and so are surrounded by both magnetic and electric fields. In fact, every part forming a high- or low-frequency circuit sets up both kinds of field, but in some components one may predominate and the other be negligible.

Fig. 1 (a) shows diagrammatically the electric field between the plates of a condenser at an instant when the upper plate is positive and the lower earthed plate negative. Most of it lies directly between the plates, but a few "lines of force" extend outwards, and a hand brought near disturbs the distribution, which determines

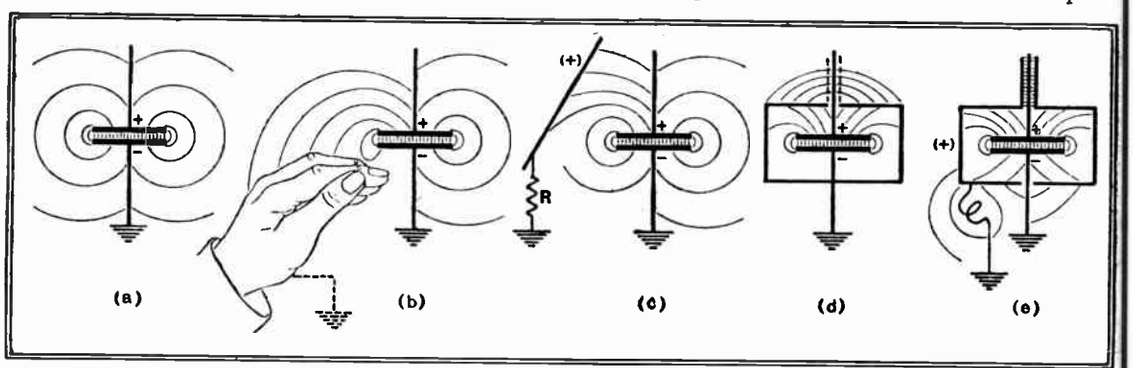


Fig. 1.—(a) The lines indicate the invisible "field" set up between the plates of a condenser when a difference of voltage exists. (b) Effect of proximity of a hand. (c) A stray lead produces a pronounced effect. (d) A condenser with a metal screen reduces stray field. (e) An inductive path from screen to earth may cause the screen to become ineffective.

Screening—Effective and Ineffective—

the capacity, and so the tuning is upset in the manner familiar to those having experience of short-wave sets, where "hand capacity" is a serious fault unless screening is adopted (Fig. 1 (b)).

But the more important effect of the stray field is that referred to at the commencement—the induction of electric charges on surrounding objects. In Fig. 1 (c) we have a lead belonging to some other part of a set passing close to the high-potential end of the condenser. It becomes entangled with some of the stray lines of force and receives electric charges corresponding to those on the condenser—of course, weaker. But if there is much amplification between the lead and the condenser a complete oscillating system may result, and the set is "unstable."

Screened Leads

A high impedance, R, is shown between the lead and the earth, because if it were directly connected to earth the charges would instantly leak to earth, and no appreciable voltage could be obtained. That gives us our cue for confining the troublesome lines of force within bounds where they cannot interfere with other business. By enclosing the condenser within a metal

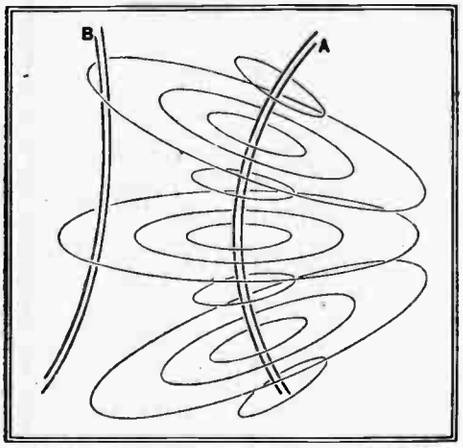


Fig. 2.—The magnetic lines of force form rings of various diameters around a wire (A) carrying current, and a few of them may link or couple another wire (B) at a distance.

case, and earthing the case, lines of force from the high-potential parts inside the case can have no appreciable effect on things outside, because the charges induced on the case dash straight away to earth through the delightfully easy metallic path. But, of course, the lead to the condenser outside the case is still capable of doing damage, and, to be thorough, the screen should be extended as shown dotted (Fig. 1 (d)).

It should be clear from the above statement of affairs that the conditions for effective screening from an *electric* field are, first, that all stray lines of force shall be intercepted by the screen, and, secondly, that the screen shall everywhere have a low-impedance path to earth ("earth" being the low-potential part of the set). With regard to the latter, it may be accepted that in ordinary radio receiving circuits any metal—even if quite thin, such as tin-foil—is low enough in resistance, for the path to earth is usually only a few inches long. But one must not forget the *inductance* of the path, particularly at such short wavelengths as are now used. A foot of straight wire, strip, or sheet, or a few inches bent into a coil, has enough inductance to allow quite an appreciable potential to be set up across it. So it is desirable to avoid long leads joining up various earthed portions of a short-wave receiver. At high frequencies (short waves) every tendency is in the direction of increased harmfulness of stray capacity. The higher the frequency being received the more exacting the screening requirements.

As regards the intercepting power of the screen, a continuous sheet of metal may be considered to be perfect and much to be desired for the purpose wherever practicable. But if it were used, for example, for the screen grid of a valve, the flow of electrons from cathode to anode would be blocked and the valve would not work. So there is nothing for it but to use a piece of gauze or similar material.

It might be supposed that the holes provided to let the electrons through would equally offer an outlet for the lines of force, but this is not so. It is as if at the entrance to an exhibition a number of refreshment houses were installed, so that thirsty visitors, even though originally aiming between the stands, are drawn aside and prevented from passing on to the interior. But the electrons are made of such stern stuff that only those that accidentally bump into the stands near the entrance are appreciably detained from going farther.

So it would be possible to screen the condenser perhaps 99 per cent. by erecting a sort of bird cage around it, provided the wires are reasonably close and lead straight to earth.

Magnetic Field

It will be noticed, of course, that the presence of the screen increases the total number of lines of force; in other words, increases the capacity. This increase may be in itself undesirable, such as in a tuning condenser, by increasing the minimum wavelength, and if the screen is supported from the condenser by high-loss material, such as a poor insulator, it makes the condenser a bad one. It is not always necessary to screen the condenser, which is the source of the leakage; it is enough to screen from it those parts that are particularly affected by it, and this sometimes offers a choice of method. The most effective thing is to screen both, but this is very seldom necessary in normal design. What about the magnetic field? This is not associated exclusively with horseshoe or other magnets, but exists whenever electricity is *in motion*, i.e., *current* (Latin: *curro*, I run).

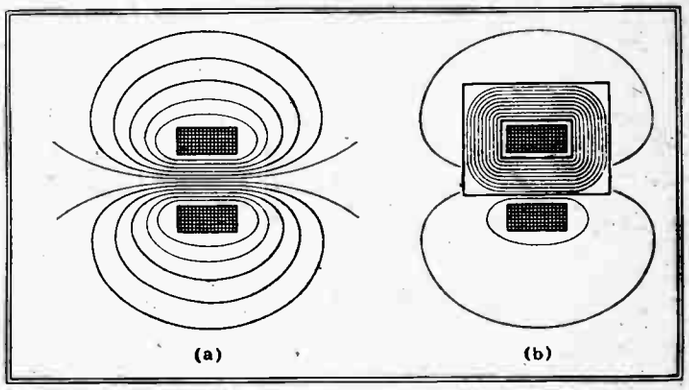


Fig. 3.—(a) The field inside a coil (seen in section) is intense, but weakens at increasing distances. (b) If the coil is provided with a closed iron core the field is restricted almost entirely to the iron.

Every condenser which is receiving an alternating charge requires that the charge shall run in and out of it, and therefore possesses a magnetic field—in other words, has inductance. But in the best condensers this effect is of little account compared with that due to the electric field. Similarly, while a tuning, choke, or transformer coil has a difference of potential (voltage) between various parts of it, and so creates an electric field, giving rise to the objectionable self-capacity, it is noted chiefly for the magnetic effect due to the current round the turns of wire (Fig. 2).

This is most intense inside the coil, but spreads out in all directions, being weaker the farther is spreads (Fig. 3 (a)). If a piece of magnetic material (chiefly iron in its fifty-seven and more varieties) is brought into the sphere of influence, it has the interesting power of gathering to itself numerous lines of force, just as

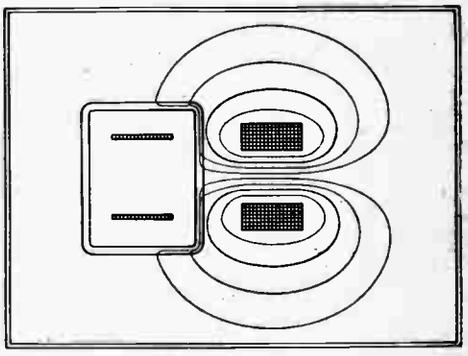


Fig. 4.—If a coil is screened by a thick iron box the disturbing field passes through the iron in preference to the air within, and coupling is prevented.

Arnold von Winkelried saved his country from the Austrians by piercing himself with as many of their spears as his arms could reach. So a closed path of iron where the lines of force pass around has the effect not only of concentrating and multiplying lines, and so augmenting the inductance of the coil, but also of offering such an

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easy path as to discourage the spare lines from straying into the wider pastures.

Therefore a coil with a closed iron core, even though very highly inductive, has little to do with its neighbours (Fig. 3 (b)).

But the moment a gap is introduced in the core, this condition of affairs largely ceases to exist, so a smoothing choke, for example, is far more prone to induce hum into surrounding circuits than a well-constructed transformer of comparable inductance.

Moreover, the above remarks apply primarily to very low frequencies such as those supplied to our houses by the corporation. The higher audible frequencies tend to make themselves felt in the surrounding space to a greater extent, and at radio frequencies ordinary iron [1] is almost completely ineffective. Tuning coils spaced a yard apart can couple intimately enough to give rise to instability in a high-amplification set.

Much can be done to mitigate this by setting the coils so that the direction of the field is such as to cause either no coupling,

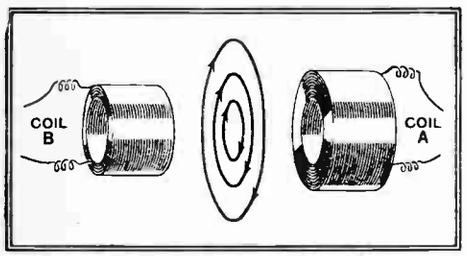

Fig. 5.—In certain circumstances closed metal loops interposed between the coils have currents generated in them which oppose the field due to the generating coil.

or mutually opposing coupling. But there is a limit to this, for the orientation of the coils must be very precise to be any good, and may have to be altered for different frequencies, and, furthermore, the problem of setting four or more coils all at right angles to every other one would be a good subject for a prize competition offered by a Scotsman.

Closed Loops

Hence screening. There are really two methods of screening a magnetic field. One is to enclose the coil to be screened in a box of highly magnetic material (or, more accurately, material of high permeability) (Fig. 4). This brings the danger nearer by attracting lines of force, but if the box is sufficiently permeable, the magnetic path is so easy that there is negligible difference of magnetic potential set up. The thin covers put on transformers are practically useless, for they are not nearly thick enough or continuous enough. The slightest gap renders such a screen ineffective. At low frequencies it must be made of $\frac{1}{4}$in. nickel-iron to be much good, and at high frequencies the permeability even of this alloy fades away. So the magnetic screen is of very limited application.

It is an elementary piece of common sense that a push in one direction is ineffective so long as there is a precisely equal pull in the opposite direction. The

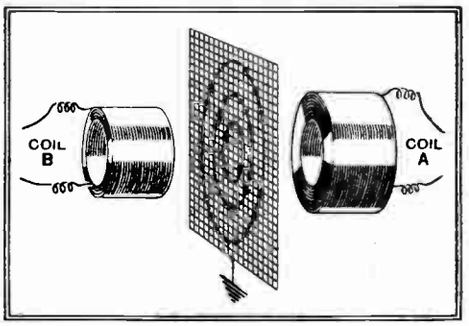

Fig. 6.—A wire gauze or mesh screen is a poor magnetic, although quite satisfactory, electric screen.

tug-of-war is indecisive. There is no objection to letting the magnetic field roam at will if it is accompanied everywhere by an exactly opposing field. One way of approximating to this is to wind the coil in two opposing halves. But if the halves are close enough together to neutralise exactly, the total inductance is zero, and it would be just as useful and a lot less expensive to abolish the coil entirely. There is a clever way out of the difficulty by making use of the very coupling effect that we want to avoid.

We know, of course, that coupling from a coil carrying alternating current causes currents to flow in any other coil that forms a closed circuit. That is how every transformer works. Now the induced current is just like any other current, and therefore it sets up a field of its own. Luckily enough, this field is in exact opposition to the field that created it (provided that the current flows through resistance only). So all we have to do is to put closed loops everywhere between the coil and the outer world, taking care that the loops are oriented so as to couple properly (Fig. 5).

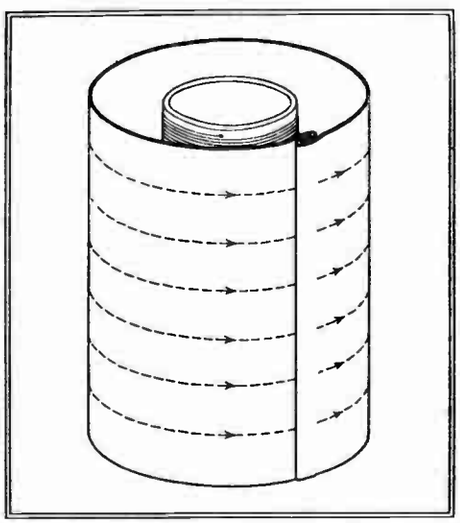

Fig. 7.—A cylindrical aluminium screen with a pressed seam may open-circuit the loop paths, owing to the high contact resistance, and so largely destroy the screening effect.

These loops are completely effective only if they form a dead short circuit—no impedance at all. This extreme ideal is impossible of attainment, and the best that can be done is a continuous enclosure of pure copper (silver is a shade better still, but is uneconomical). There is then no question of setting the loops exactly in the right relation to the coil, because a continuous sheet provides conducting loops in every direction.

Metal Gauze

The higher the frequency the more effectively the field is cancelled by a given thickness of screen, so that very short wave coils can be screened by thin foil, but coils carrying currents of domestic-supply frequencies require absurdly thick screens. In fact, although iron is higher in resistance than copper, and therefore worse in neutralising the field, it wins on points because of its greater permeability. But somewhere in the region of low radio frequencies copper takes the honour and holds it over the whole band of wavelengths in which we are interested.

There is another point to consider when providing a coil screen. The induced currents in the screen react back on to the coil that caused them, and add to the losses of the coil. If the screen fits closely

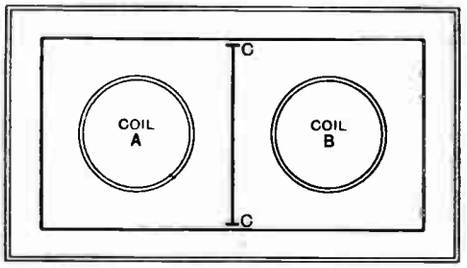

Fig. 8.—Two coils in built-up screening compartments may couple strongly if the partition makes bad contact at CC.

around the coil, the effect is almost to short-circuit the coil, besides adding greatly to its self-capacity. In addition, the screen carries heavy currents which are likely to lead to imperfectly distributed field neutralisation. So the screen should be as large as possible and well away; at least double the diameter of the coil.

The thicker and more conductive the screen, the more perfect the screening and the less the resistance thrown back into the coil.

In this respect it differs from an electric screen. It differs also in requiring no earth, though it usually is earthed in order to perform the dual rôle. Not only is greater thickness of metal desirable for magnetic screening, but the metal gauze construction is quite hopeless. The reason is that while a path to earth in a gauze screen may be reasonably low-resistance, as it can follow a single wire all the way, the closed loops include numerous poor contacts in series and are far from being short circuits (Fig. 6). There is enough conductivity to ruin the efficiency of the coil within, and not enough to do any

[1] "Ferrocart" coils promise to break away from this limitation.

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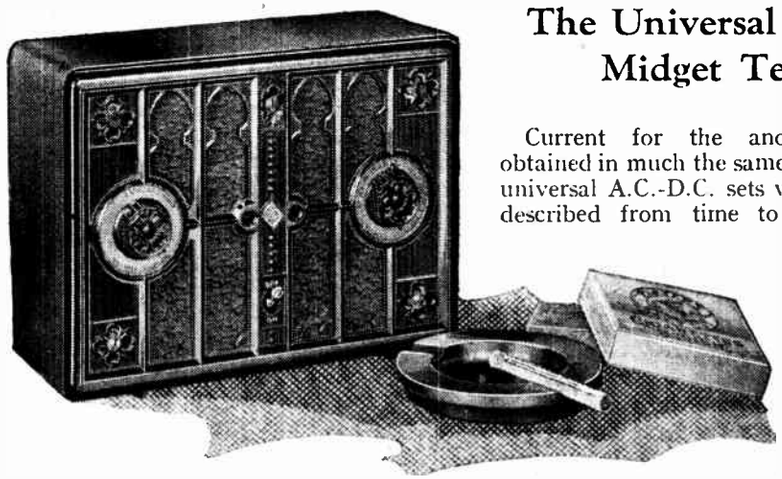
screening worth mentioning. So it is quite possible (and sometimes useful) to have a screen which shuts off the electric field and passes the magnetic, or vice versa.

A coil screen may have a very brave appearance and yet conceal an unsoldered seam that cuts across all the loops running parallel to the turns of the coil (Fig. 7). A screen is even capable of coupling two coils more intensely than if it were absent altogether (see Fig. 8). The spiral wire, or strip screen, which is sometimes seen, is supremely useless for both magnetic or high-frequency electric purposes, for it offers an inductive path to earth and fails in the main essential, having no closed loops at all.

There are many other subtleties of screens, but perhaps enough has been said to show that the receiver which has the greatest mass of metal bestowed on and around it is not necessarily the best screened.

An American A.C.-D.C. Set

The Universal Kadette Midget Tested



IN *The Wireless World* of March 24th some technical details of the latest American Midget "universal" sets were given. These tiny receivers, which work interchangeably on either A.C. or D.C. mains, have enjoyed extraordinary popularity in the country of their origin, and are now available on the British market. One of the Kadette receivers—a typical example of the "cigar-box" type—has been submitted for test by Anglo Auto Accessories Co., Ltd., 11, Great Queen Street, London, W.C.2.

With the addition of a barretter resistance when necessary, the set may be operated on any type of mains supply between 100 and 250 volts, A.C. or D.C., and of any standard periodicity. The extra resistance, which is built into a special form of plug adaptor, and is extremely compact, is only needed for voltages above 110.

Straightforward 1-v-1 Circuit

The circuit arrangement is that of an H.F. amplifier, detector, and output pentode; input and output circuits of the H.F. valve are of the single-tuned type, volume being controlled by adjustment of bias in the conventional way. Anode bend detection is employed, the valve being linked to the pentode by means of resistance-capacity coupling.

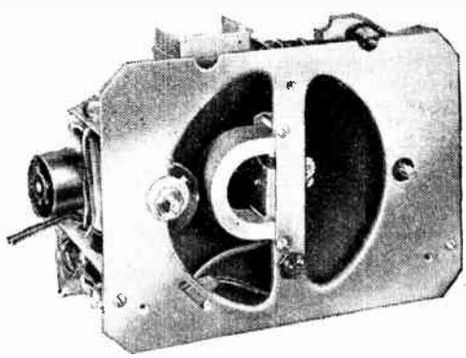
All valves are of the indirectly heated type, their heating elements being wired in series. Self-bias is obtained for each valve by the usual expedient of inserting a cathode resistor.

Current for the anode circuits is obtained in much the same way as in other universal A.C.-D.C. sets which have been described from time to time in these pages. In the Kadette set, the half-wave rectifying valve is of the mercury vapour type.

Receiving and rectifying valves are naturally rather smaller than their British counterparts. This is not surprising, in view of the fact that the set is a marvel of compactness, measuring externally about 8½ ins. by 6½ ins. by 4 ins. back-to-front.

The ganged condenser is of the air dielectric type, complete with segmented end vanes. Tuning coils are perhaps a shade smaller than usual, but, due to the fact that they are not enclosed in screening covers, their efficiency is probably about normal.

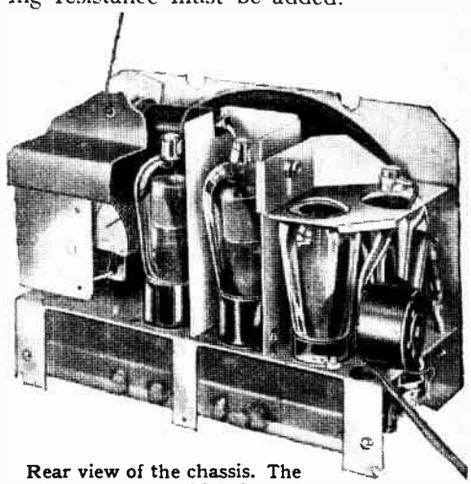
An insulated aerial wire of about 25 feet in length, which may be coiled up and tucked into a compartment at the back, forms a permanent part of the set; a similar recess is provided for the mains connector.



Although only 6 in. in diameter, the cone loud speaker occupies a large proportion of the chassis space.

The built-in loud speaker is of the moving-iron type, with a cone about 6 ins. in diameter; small as it is, it naturally occupies a good deal of the chassis space.

Total current consumption amounts to about a quarter-ampere, and so the power dissipated in the set amounts to less than 30 watts. Of course, when working on voltages above 110, the amount of energy dissipated in the external voltage-absorbing resistance must be added.



Rear view of the chassis. The adaptor socket, which is used only when batteries are employed, can be seen on the extreme right.

Although primarily designed for mains operation, the Kadette is an extraordinarily versatile little set, as provision has been made for working it from external batteries.

It can also be used as a motor car set, and with this object in view an adaptor socket is included as part of the receiver. This socket is normally out of the way inside the set, but it may be withdrawn and connected to the corresponding multiple plug to which the car accumulator and an H.T. battery are connected. A special conversion "kit" for car work, complete with interference suppressors, etc., is available.

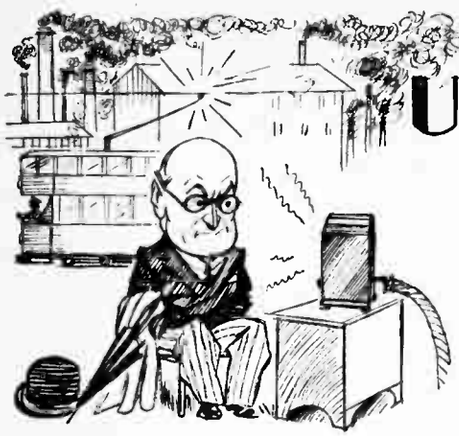
Compact but Sensitive

In the matter of sensitivity and selectivity, this set behaves very much like other comparable types with which we are familiar, having the same number of valves and tuned circuits. Of course, in making this comparison, the length of the aerial is taken into account. Control is extremely simple, and the volume adjustment works exceptionally well. Under difficult conditions, the inherent selectivity of the set is hardly enough to ensure immunity from interference, but the general performance of the receiver is distinctly useful.

Volume is surprisingly great, and quality of reproduction is much more pleasing than one might expect. Most of the output is confined to the band between 500 to 2,000 cycles, but, for the purpose for which the set is intended, this is satisfactory enough.

The price of the standard model is ten guineas, complete with external resistance.

Kadette receivers are also being shown on Stand No. 442a at the Ideal Home Exhibition by the Homeaids Radio Company.



UNBIASED

by Free Grid

Move our aerials into—

Loud Squeakers

IT was only the other day that I was discussing the problem of compact and suitably shaped radiogramophones for the modern super dolls'-houses which are springing up overnight in the suburbs of all large towns. It is quite evident that the radio industry has been faced with a similar difficulty in America, and so has designed the set to suit the house. At any rate, I can think of no other valid reason for the production of the midget sets which are now trickling over to this country.

I had the opportunity of examining and testing several of them the other day, and I fully agree that their compactness is a marvel of ingenuity, and that the sensitivity and selectivity is remarkably good. There is very little of the lower musical register in them, however, and one could hardly expect otherwise.

I do hope that as a result of the complaint I made the other day about the unwieldiness of British receivers, manufacturers in this country won't rush to this other extreme. If they do, let them leave out the loud squeaker and make the set smaller still. I defy any man to get decent quality if he stuffs his loud speaker into a Lilliputian cabinet.

The Limit

I WAS very interested in a "W.W." article the other week in which we were urged to jettison our humble twenty-foot downleads in favour of monstrosities several hundred feet in length. The idea is that we should move our aerials into the peace of the countryside to dodge electrical interference and then link them up to our sets by means of the "transmission line" type of downlead.

It is quite evident that the good gentleman who advocates this sort of thing is more used to the great open spaces of the land of liberty than he is to the pettifogging restrictions of this parasites' paradise, for he quite forgets that by the terms of our receiving licences officialdom limits us to an aerial of 100 feet in length, including the downlead.

In fairness to this misguided scribe, it must be said that he frankly admits that his information is of American origin.

Nevertheless, the fact remains that, no matter whether you call it a downlead or a transmission line, it is counted as part of the aerial within the meaning of the Act. On this point a Post Office friend whom I consulted seemed very emphatic.

It is high time that we all got together in order to get this archaic prohibition removed. The reason why it was originally adopted—and I defy anybody associated with the G.P.O. to contradict me—was to prevent listeners in this country hooking a pirate transmitter to their aerial and communicating with foreign countries.

At the time when this rule was made, it was thought that if the aerial were limited to a 100 feet, communication beyond the confines of the realm would be a technical impossibility. Amateur transmitters exploded such an idea years ago, of course, and such a regulation merely irks the citizen in these days, when it would be possible to communicate with the enemy with a bent pin as aerial and a school globe as earth.

Nor Iron Bars a Cage

IF credence can be placed in the report of a Scottish journal, the P.M.G. secured a truly magnificent scoop the other day with his detector van.

It is well known that if you keep a lodger (sorry, I mean paying guest) in your house, he is required to take out a separate licence if he uses even a humble crystal set in his room. I did not know, however, that the same ruling applies if your aunt or any other wretched relatives foist themselves upon you. At any rate, the other day a worthy Scot who is a properly licensed listener received an unexpected and uninvited visitor in the form of a maiden aunt.

Scarcely had the good lady's tin trunk been carted upstairs than there came a peremptory knock at the door and a wireless inspector presented himself, demanding to see the wireless licence and to inspect the gear of the "guid man of the hoose." These were duly produced, and it was thought that the inquisition was over, when the martinet of the P.O. demanded to inspect the second radio set in the house. In vain did the householder protest that none such existed, and it would probably have meant application at the local police court for a search warrant, had not the newly arrived visitor announced that she had brought her small portable with her.

It appeared that the P.O. van had been in the vicinity at the time with the special object of searching out unlicensed lodgers' sets, and the good lady had been the first victim; this, mark you, in spite of the fact that her receiver was completely shielded by being in the tin trunk.

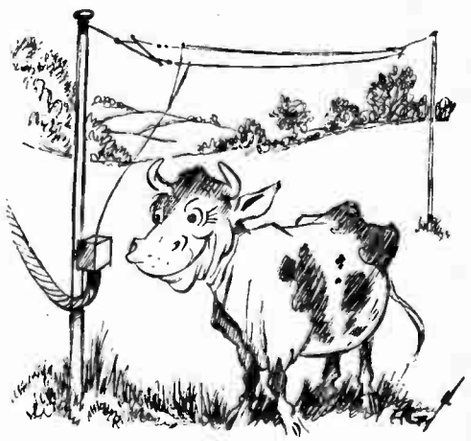
Truly this is an amazing piece of technical progress, for at one fell scoop it does away with the blind spot bugbear caused by steel structures. The modesty of the Post Office engineers with regard to their remarkable invention is highly commendable.

Impatient Patients

MY denunciations of hospital wireless, both in the matter of electrical interference and the early switching off of programmes in the evening, have brought me several fresh complaints from patients and ex-patients.

One correspondent specially pleads that the B.B.C. should radiate hospital programmes in the early morning. "Anybody who has ever been in a hospital," he writes, "will be acquainted with the ghastly and barbarous practice of waking patients and washing them in the wee small hours at a time when all good Christian folk are asleep. Not even in Wormwood Scrubs, and similar places, is such Spartan treatment meted out to the inmates, as I can personally vouch for. I suggest that special cheery programmes suited to the hour and the occasion be prepared by the B.B.C."

Yet another reader complains of the monotony of being compelled to receive only one programme. "I realise that half-a-dozen wall plugs, giving an equal number of programmes, is rather too much to ask for," he states, "although according to a recent *Wireless World* article this service is available in a New York hotel,



—the peace of the countryside.

but I *do* think that wiring might be carried out so that at least two programmes were available."

I have received such a large number of letters offering suggestions and detailing complaints that I am thinking of starting a "Hospital Listeners' Association," so that all these things can be demanded and a united front presented to the powers-that-be.

NEWS *of the* WEEK

Current Events in Brief Review

Closing Down

THE new "Deutschlandsender" (Konigswusterhausen) now closes down with the National Socialist song followed by the National Anthem. It is expected that all other German stations will shortly follow suit.

Jewish Programmes from Holland

TO the many religious and political broadcasting associations in Holland is now added the Israeliete Vereeniging Radio Omroep, consisting of unemployed Jewish musicians who, we understand, will shortly give concerts from either Hilversum or Huizen.

The "Lucerne Plan"

THE Lucerne Conference, the most important meeting of its kind since the Prague Conference of 1929, is to open on May 15th or 16th next. Shortly before that date the International Broadcasting Union will meet to complete its proposals for a new wavelength plan.

We understand that it is hoped to publish the new "Lucerne Plan" before Whitsuntide.

Nipped in the Bud

POLITICIANS who have been banned from the German microphone on account of anti-Hitler views have been seeking facilities for broadcasting in Holland. The Minister of Public Works, however, has notified the Dutch Control Commission that talks on politics cannot be authorised if there are reasons to believe that the talks would not be permitted in the country for which they are intended.

Changing Their Tune

FRENCH listeners, who have recently been complaining against the amount of British publicity in the programme from French stations, have suddenly changed their attitude as the result of the formation ot an advertising company to exploit the high-power Irish station at Athlone, writes our Paris correspondent. It is now realised that the moneys so badly needed by French broadcasting are likely to cease as a result of the new competition, so that freedom from British trade propaganda will not be an unmixed blessing.

Finding Running Commentators

AN ingenious new method for discovering budding talent among prospective radio reporters has been evolved by Herr Richard Kolb, of the Berlin Witzleben station. News films are projected in the main hall of Berlin Broadcasting House and the candidates for microphone appointments are required to give as vivid a word picture as possible of what they see.

When Listeners "See Red"

TRAFFIC signals are causing interference to wireless reception in Belfast, and the postal authorities have had to forward a batch of complaints to the City Council. Experiments are now being carried out to see if the trouble can be overcome.

Fire at Radio Toulouse

DISASTER overtook Radio Toulouse on April 6th, when fire broke out at the studio buildings near the city and did considerable damage. Fortunately, the new high-power transmitter at the Chateau d'Agnan is not affected, but we understand that the lack of a suitable studio makes transmission impossible for the next few days.

The actual fire occurred at Villa Schmit, where the studios and the original 8 kW. transmitter were completely destroyed.

Singapore Leads

THE possibility that the Empire may be dotted with relay stations, especially for the reception and distribution of the B.B.C. short-wave transmissions, is suggested by the project for the establishment of a relay station at Singapore. The original station closed down several years ago.

A Vocal Clock

THE Paris Observatory now has a "speaking clock" which, as one radio journal puts it, announces the hours with a "hoarse and hollow voice." One critic likens the clock's speech to the sound of a worn-out gramophone record made by a sufferer from catarrh.

Elettra at Olympia

WIRELESS enthusiasts visiting the Ideal Home Exhibition at Olympia make a bee-line for the "Rooms of the Scientists," more especially to see the reproduction of part of the wireless room in Marchese Marconi's famous yacht *Elettra*. The cabin has been furnished with a Marconi short-wave transmitter, Type SWB.4, as used in early experiments in long-distance ship-to-shore wireless telephony. There is also an example of the new micro-wave apparatus as well as a direction finder and a marine receiver designed for loud speaker reception on telegraph or telephone signals. Working demonstrations are given.

Included in a "Museum" display next to the "Rooms of the Scientists" is a selection of coherers used by the young inventor in Italy in 1895.

The Marchese and Marchesa Marconi visited the Exhibition on the opening day.

Wireless in Welsh

A CORRESPONDENT of the *Western Mail* has compiled a wireless vocabulary in Welsh. Among the suggested terms are the following: Gwerchyr (valve), torch annog-dorch (coil), cynwyseddur (condenser), gorwasg (high tension), bychanwasg (low tension), Wybrell (aerial), cyfanell (set).

Anti-interference Campaign

THE firm of Ward and Goldstone, of Manchester, has recently organised a special department to deal with technical problems involved in the use of their Screened Down-leads and other devices for minimising the effects of "man-made static." The new service is free, and questionnaire forms are available for distribution to sufferers from interference.

Trolley Buses at Bay

AT last the trolley bus seems to be turning on its tracks to hit out at those who would blame it for every crackle and splutter in their radio receivers. According to the *Trolley Bus Gazette*, issued by the British Electrical Development Association, trolley buses "are blamed for every click, splutter or squeal on wireless sets of whatever age or design, although the buses may not have been running at the time."

Apparently recent cases which were investigated revealed that the disturbance was being caused by the ignition system of a gas engine half a mile away and an electric bakery.

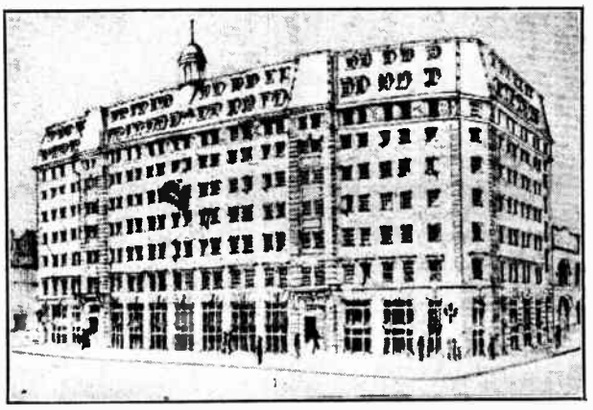
British manufacturers of trolley buses are fitting stopper coils as part of the standard equipment.

Wireless Music in Public

ON April 5th Mr. Justice Maugham gave an important decision in the Chancery Court to the effect that loud speaker reproductions in public places of the B.B.C. broadcasts constituted new performances entitling the copyright owners to royalties.

The test action was brought by the Performing Rights Society, who asked for an injunction restraining Hammond's Bradford Brewery Company from permitting the George Hotel, Brighouse, to be used for the performance in public of any musical work of which the right of performance was in the plaintiffs, and for damages for alleged infringement of copyright by the unauthorised reproduction of three musical pieces broadcast by the B.B.C. His Lordship decided in favour of the plaintiffs. The case will probably be taken to the Court of Appeal.

The Performing Right Society has subsequently stated that it does not contemplate any departure from its policy of making no claim in respect of the performance of music by dealers in the course of their business on their business premises, by wireless sets or musical instruments, provided such performance is confined solely to the department dealing in such articles.



CHANGE OF ADDRESS.

The **Wireless World**
THE PRACTICAL RADIO JOURNAL

THE Editorial, Advertising and Publishing Offices of "The Wireless World" are being removed to new and larger premises.

As from Monday, April 17th, all communications should be addressed to:

DORSET HOUSE,
STAMFORD STREET,
LONDON, S.E.1.

Telegrams - "Ethaworld, Watloo, London."
Telephone - - - Hop 3333 (50 lines).

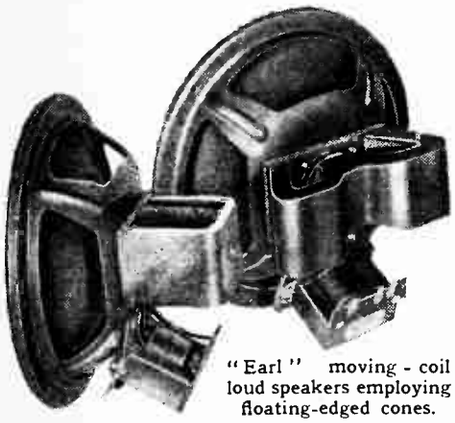
LABORATORY TESTS

"EARL" LOUD SPEAKERS

SUPERFICIALLY these units appear to follow conventional practice in design, but a closer examination reveals several points of divergence.

Instead of rigidly clamping the periphery of the diaphragm it is allowed to float between felt rings so that not only is it to a certain extent self-aligning, but considerably greater movement is permitted to the diaphragm and the restoring force is much less than in the majority of small moving-coil units. As a result the bass response is fuller and altogether more pleasant to listen to. The usual strong resonance at 100 cycles is absent, and instead the slightly enhanced bass response is spread over an octave from 75 to 150 cycles.

The middle and upper middle registers from 150 to 2,000 cycles are unusually free from minor resonances and the top is strengthened by an increase of output between 2,500 and 4,000 cycles—again without any definite resonant frequency. The junction of the apex of the cone with the moving-coil former has been given a slight radius and this, in conjunction with the material chosen for the diaphragm, probably accounts for the absence of any sharp resonance in the higher frequencies. The output falls off gradually above 4,000 cycles, but there is still a useful response at 8,000 cycles with inputs of the order of 750 mW.



"Earl" moving-coil loud speakers employing floating-edged cones.

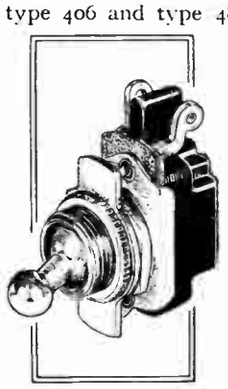
The efficiency of the permanent magnet model is exceptionally good, and is, in fact, very little different from the mains-energised model. The latter, incidentally, is fitted with a hum-bucking coil, and both models are equipped with dual-ratio output transformers giving alternative load impedances of 3,000 and 11,000 ohms.

The price of the permanent magnet model is 35s., and of the mains model 25s. The makers are Electriclocks and Radio, Ltd., Avenue Works, Hanover Park, London, S.E.15.

BRITISH RADIOPHONE Q.M.B. SWITCHES

COMPACT, robust, and as reliable as any house lighting switch, despite their diminutive size, these toggle-type switches will handle with perfect safety and freedom from arcing currents up to 3 amps. at 250 volts. The metal frame with its single-hole fixing bush is completely insulated from the electrical contacts, which, with the exception of the small terminal tags, are enclosed in a neat moulded bakelite body.

Two models of the single-pole on-off type are available. Known respectively as the type 406 and type 485, they differ in that the first mentioned is fitted with a slotted lever for incorporating in a composite unit comprising two or more component parts, such as volume control with mains switch, or combined waveband and mains switch. The price of either style is 1s. 3d.



British radiophone on-off Q.M.B. switch.

A three-point switch is available for 1s. 6d., while there is also a four-point double-throw model made, the price of this being 1s. 9d. The makers are the British Radiophone, Ltd., Aldwych House, Aldwych, London, W.C.2.

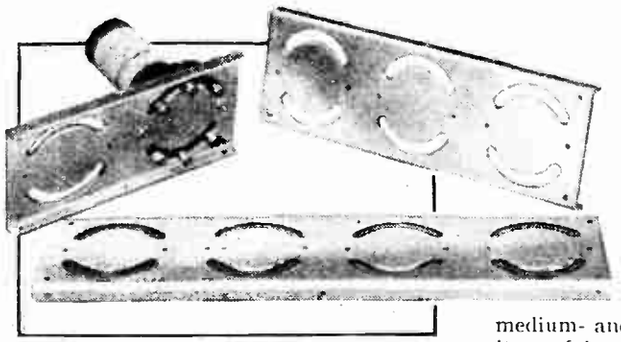
NEW RADIO PRODUCTS REVIEWED

GOLTONE COIL CHASSIS

A RANGE of stout aluminium chassis for mounting Goltone Screened Dual Range Coils are now obtainable from Ward and Goldstone, Ltd., Frederick Road (Pendleton), Manchester. They are made to accommodate two, three, or four coils, each coil being fixed by two screws, the correct number of screws and nuts being supplied with each chassis.

With the aid of these, coils can be mounted either vertically or horizontally, and extension terminals are available to bring the various contact points below the chassis for convenience of wiring. A longer type of terminal extension is available for use when the base plate is mounted on a metal receiver chassis and so carry the contact points to a convenient depth for under-deck wiring.

A two-coil chassis costs 1s. 6d., one for three coils 2s., and a four-coil model 2s. 6d.



Goltone coil chassis showing one coil in position and extension terminals.

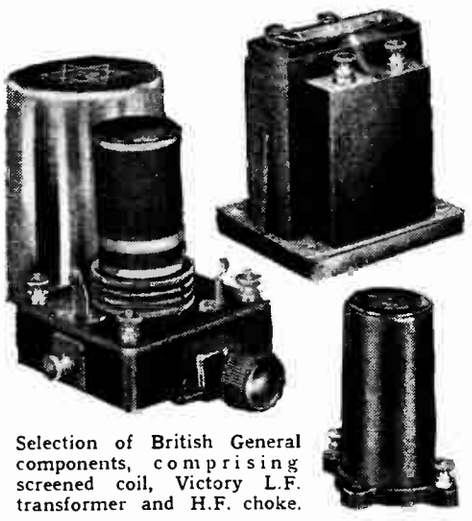
The short, or type A, extension terminals cost 4d. a packet of six (sufficient for one coil), whilst the type B, or longer size, cost 5d. per packet of six.

BRITISH GENERAL COMPONENTS

FROM the selection of components sent in by the British General Manufacturing Co., Ltd., Brockley Works, Tyrwhitt Road, London, S.E.4, a few were chosen at random for test, since space does not permit a detailed review of the full range.

The latest screened coils are particularly attractive, for they are mounted on cleanly moulded bakelite bases and enclosed in polished aluminium containers. They are the customary dual-range types with the medium-wave section wound on a 1¼in. paxolin tube whilst the long-wave portion is slot-wound. The specimen tested was the H.F. anode coupling coil which can be employed either in a tuned anode circuit or in a tuned grid circuit. Both medium- and long-wave sections are tapped down for the anode connection, the change-over from one tapping to the other being made by the wave-range switch.

The efficiency of the coil is particularly good, being well above the average for its class, and the specimens tested were found to be closely matched. The inductance of the medium-wave section is 145 microhenrys, whilst that of the long-wave portion is 1,870 microhenrys, and although these values are slightly lower than in the average coil of this type it is yet possible to cover the broadcast bands of 200 to 550 and 700 to just under 2,000 metres when using a 0.0005 mfd. condenser. The price is 9s. 6d. for either aerial or anode coil.



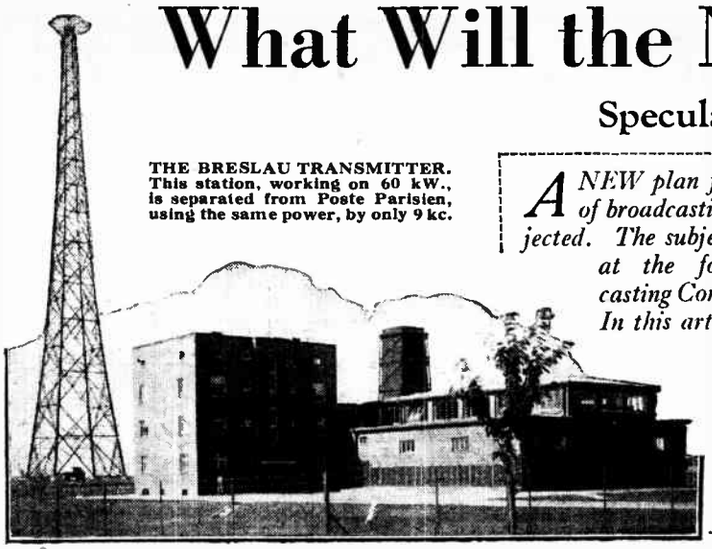
Selection of British General components, comprising screened coil, Victory L.F. transformer and H.F. choke.

Of the two H.F. chokes made we chose the larger model for test, costing 5s. 6d. This has an inductance of 128,000 microhenrys which, coupled with the low self-capacity of 4.5 m-mfds. not only ensures that it will meet all requirements on the medium- and long-wave bands, but extends its usefulness to short-wave use, for it will prove quite satisfactory on wavelengths as low as 50 metres.

The Victory L.F. transformer is an inexpensive component, costing but 7s. 6d. It affords a step-up ratio of 1 to 3½, and is housed in a moulded bakelite case. It has a primary inductance of 12.8 henrys with no D.C. flowing, 11.1 henrys with 2 mA. and 9.5 henrys with 4 mA. of D.C. The resistance of the primary winding is 500 ohms. When connected in the anode circuit of a medium impedance detector it gave quite pleasing reproduction.

What Will the New Wave-Plan Be?

Speculation on the Lucerne Conference



THE BRESLAU TRANSMITTER. This station, working on 60 kW., is separated from Poste Parisien, using the same power, by only 9 kc.

A NEW plan for the organisation of broadcasting in Europe is projected. The subject will be discussed at the forthcoming Broadcasting Conference at Lucerne. In this article our contributor speculates as to the proposals likely to be adopted in an endeavour to straighten out the wavelength tangle.

By J. GODCHAUX ABRAHAMS

EUROPE, to-day, if chaos in the ether is to be avoided, is confronted with a serious problem—that of devising a new wave-plan to replace the one previously compiled at Prague; not only must the authorities allot channels to the transmitters now in operation, but they are also called upon to find suitable wavelengths for stations which are still in course of construction.

Since the original *Plan de Prague* was brought into operation conditions have entirely altered. As the power of the transmitters working at the time was the main factor which decided the geographical separation of stations broadcasting on neighbouring wavelengths, a separation of 9 kilocycles between channels, in conjunction with the relatively low energy of the transmitters, was a practical proposition; but when the power of the stations, as in some cases, was increased tenfold, this new factor completely upset all calculations. From the moment the majority of the main European transmitters increased their energy, interference was reported from almost every quarter of the European continent, and since that time conditions generally have been going from bad to worse.

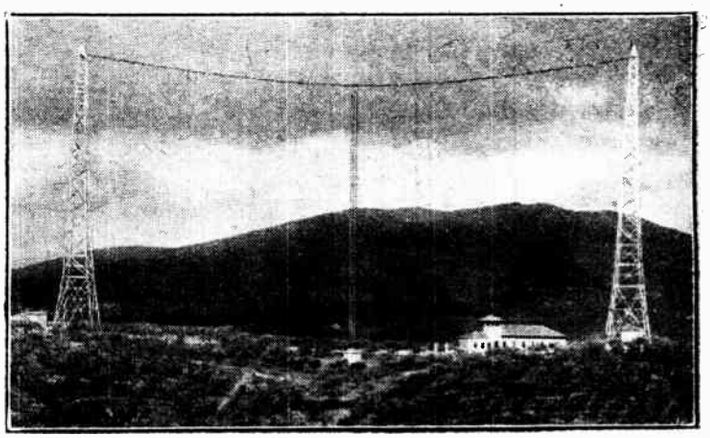
More High-power Stations

A comparison of to-day's list of broadcasting stations with one published, say, even three years ago will show to what extent the number of high-power transmitters has grown, and to it must still be added the stations which are nearing completion, in early stages of construction, or still proposed by European countries anxious to develop *their* radio system in the near future.

Roughly speaking, over and above those already launched, we may expect to see during 1933-4 new high-power transmitters in action at Berlin, Hamburg, Moscow, Kalundborg, Motala, Trondheim, Bergen, Brussels, Paris, Lille, Lyons, Marseilles, Rennes, Toulouse, Bordeaux-Lafayette, Nice, Belgrade, Wychbold, Bucharest, Luxembourg, Vienna, Lisbon, Madrid, Barcelona, Hilversum, Poznan, Budapest, Algiers, Rabat, etc., etc. This list is by no means complete *if all the plans of the European nations mature*. Taking these altered factors into consideration, it is obvious that to gain a workable frequency separation between channels used by these giant stations a completely new plan must be devised at Lucerne in June. Although but little information has transpired regarding the workings of the preliminary conference at Brussels, it is possible to state definitely that alterations will probably be made in the wavelengths of *almost all European transmitters*. Neighbouring wavelengths will be allotted to stations *at considerable distance from one another* in order that no mutual interference may arise. At present we have such anomalies as Breslau-Poste Parisien, Mühlacker-London, Brussels-Florence, and so on, transmitting on channels with a minimum frequency separation. Slight adjustments under present conditions are worse than useless, and more drastic methods must be adopted.

The establishment of a completely new wave-plan to some extent has been facilitated by the fact that the broadcast band has been slightly extended, namely, from 200 to 600 metres; from 1,132 to 1,875 metres; and that within reason, and providing the geographical positions of stations so permit, a certain number of channels incorporated in the 600-1,000-metre band may be used. As this region is reserved to maritime services the allotment of wavelengths in this band will be dependent on authority obtained by individual States, but there is no doubt that in many instances a number of channels will be gained in this manner. The advantage derived by the increased number of wavelengths allotted to the broadcasting services will permit the allocation of a further channel to some countries, such as Austria, Finland, Switzerland, Hungary, and so on; in fact, it will allow the inclusion of a number of new transmitters for which, under present conditions, no wavelength is available. There is little doubt, also, that to gain channels a greater number of shared wavelengths will be created; this will be feasible so long as they are given to stations at great distances from each other. In the "long" waveband more room will be found than has hitherto been the case, and in this region in the future we may find Spain, Portugal, Roumania, Finland. According to a Continental report, such stations as Sundsvall, Rabat, and Astrakhan may be required to operate on a common wavelength (note their geographical position in relation to each other). Moreover, it will not be necessary to stand rigidly by a 9-kilocycle separation when compiling the new plan; more elasticity will be permissible in the creation of channels, and where it is deemed necessary a difference of 11 kilocycles between certain powerful transmitters may be carried out.

It is very likely that the number of *ondes communes* will not be reduced, but stations to which they are allotted will be classed under two separate headings. In the first we shall see transmitters of which the power does not surpass 2 kilowatts but which are not allowed to deviate much from their allocated positions in the waveband. In the second class will be placed all local relays of low energy (not exceeding, say, 600 watts); on these small transmitters channels between 200 and 206 metres will be bestowed. Apparently, in the compilation of this new wave-plan—will it be called the *Plan de Lucerne?*—the technical members of the Brussels Conference have realised that Europe will shortly possess a number of giants capable of radiating programmes with an energy of from 100 to 150 kilowatts—perhaps even more.



The transmissions from Florence (20 kW.) are not easily kept clear of Brussels No. 1 (15 kW.) operating 10 kc. away.

Simplified Aids to Better Reception

MANY constructors of D.C. mains sets would feel easier in their minds if it were possible to check the current flowing through the series-connected heaters of the valves. Unfortunately, a suitable type of ammeter or milliammeter is not often available, but it may be borne in mind that if the anode currents of all the valves correspond roughly with the rated values we have *prima facie* evidence that the heater circuit is also correct. This test is still more likely to be reliable if, in the output stage at any rate, automatic bias be temporarily replaced by a bias battery.

D.C. Heater Circuits

THERE is no mystery about the requirements for successful single-control or ganged tuning of a number of circuits. Nevertheless, the success or failure of a one-knob receiver is dependent upon the taking of a few simple precautions, and it should be emphasised that the three basic constants in each circuit must be identical.

Matched Circuits

Complete success can only be attained when each coil has the same inductance value, each section of the ganged condenser has the same capacity at any corresponding angular settings, and when the initial capacity of each circuit is brought up to the same value. In other words,

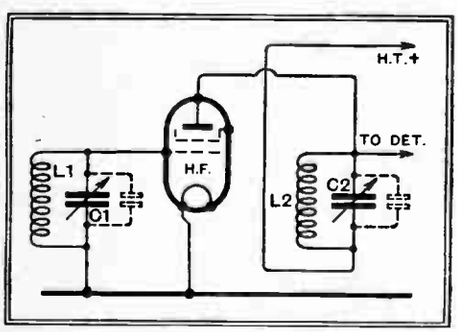


Fig. 1.—A simplified diagram showing the requirements for ganged tuning control of two circuits. The condensers shown in dotted lines represent the combined capacity of trimmers and "strays."

the arrangement shown in Fig. 1 cannot be ganged properly unless L1 and L2 are identical, C1 and C2 properly aligned, and the stray capacity indicated by dotted lines adjusted to the same value.

Inequalities in the value of inductance or variable condenser capacity can usually be compensated for at any one wavelength by adjustment of the trimming capacity, but such an adjustment cannot hold good at other wavelengths.

HIGH-CAPACITY, low-voltage condensers of the dry electrolytic type have now been available for some time; they have a number of applications, but are nowhere more usefully employed than in grid bias circuits. This is especially true in the case of mains-driven resistance-coupled amplifiers where ordinary methods of grid decoupling are not effective.

Retaining Low Notes

In such amplifiers it is usual to obtain bias by inserting suitable resistances in the individual cathode leads of each valve. Across these resistances a by-pass condenser is usually shunted, but the trouble is that ordinary paper condensers of reasonable size and cost have insufficient capacity to prevent a reversed reaction effect at low frequencies, which introduces a loss of bass.

The substitution of 50-mfd. electrolytic condensers as by-pass capacities is quite a practical expedient, and will generally bring about a noticeable improvement in the proportional reproduction of the lower register. Condensers of this capacity, and rated to work at 12 volts—quite enough for all stages except, perhaps, the output—cost only a few shillings.

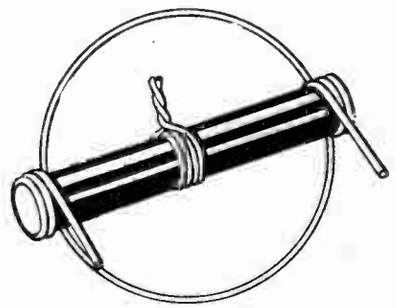
A MOULDED resistance of the carbon or composition type may in many circumstances be used quite successfully as a potentiometer, especially if critical adjustment is not needed.

In a resistance of this type, the conductive material is equally distributed, and, if care be taken, it is possible to pick up a voltage from any point along the length of the resistance rod. Before attempting to do so, it is, of course, necessary to remove the protective coating of enamel and to scrape the rod quite clean.

A Cheap Potentiometer

The only difficulty likely to be encountered is in making a sufficiently intimate contact with the resistance element; a light single-point contact is certain to have a high resistance.

A fairly satisfactory method is illustrated in the accompanying sketch; here the rod is wrapped with two or three turns of tinned copper wire. A more satisfactory and more easily adjustable connection can be made with a light circular metal clip fitted with a tightening screw; the inside surface of the clip may with advantage be "tinned" with a thin layer of solder, or a strip of tinfoil may be used.



A tapped connection on a fixed resistor of the carbon type, which may in this way be converted into a potentiometer or variable resistance.

A practical use for a potentiometer of this type is in regulating the screening grid voltage of an H.F. valve.

IN devising an automatic volume control system, the aim of the designer is, in the simplest terms, to arrange matters so that one or more of the H.F. or I.F. amplifying valves in the receiver may be fed automatically with the correct grid-bias voltage. By "correct" it is to be understood that value of bias which corresponds to just sufficient sensitivity to give reproduction of a pre-determined loudness. In practice, the controlling grid-bias voltage is always developed across a resistance, so connected that voltage differences existing across it will be applied to the grids of the controlled valves.

Points About A.V.C.

It will be realised that the amount of bias thus developed is of prime importance; if it never reaches a sufficiently high value, control will be insufficient when dealing with strong signals. There is also the possibility, with some systems, that the initial bias applied under "no signal" conditions may be too high, with the result that the amplifier can never work at full efficiency.

Obviously, therefore, it is a matter of some importance to have an idea of the bias voltage developed under varying conditions. With ordinary instruments it

Practical Hints and Tips—

is impossible to make a direct measurement of voltage, and so as a rule the information must be acquired by indirect means. Knowing the value of the bias resistor, the current flowing through it is measured, and then the applied voltage is ascertained by multiplying *resistance* (in ohms) by *current* (expressed as a fraction of an ampere). As resistances are often high, and currents are low, a very sensitive meter is sometimes needed.

An indication that everything is working "according to plan" is afforded by connecting a milliammeter in the anode circuit of the controlled valve (or valves). Normally, the current flowing will assume a steady value, depending on the amount of sensitivity required. Any change in the H.F. input from the aerial should be followed by a corresponding change in current. For instance, if fading sets in, current should begin to creep upwards; obedient to the action of the automatic control system, negative bias is being reduced in order that sensitivity may be automatically increased to cope with the new conditions. For test purposes, input to the receiver may be artificially reduced by connecting a variable resistance—of about 25,000 ohms—between aerial and earth terminals.

Those who are unfamiliar with the operation of an automatic volume control system should perhaps be warned that the tracing of a fault, even of the simplest nature, is often difficult when the control is operative. It is accordingly a good plan to make provision for cutting it out of circuit when required.

ON THE SPOT

Visits to Foreign Broadcasting Stations

VII—Kaunas, 155 kc., 1,935 m., 7 kW.

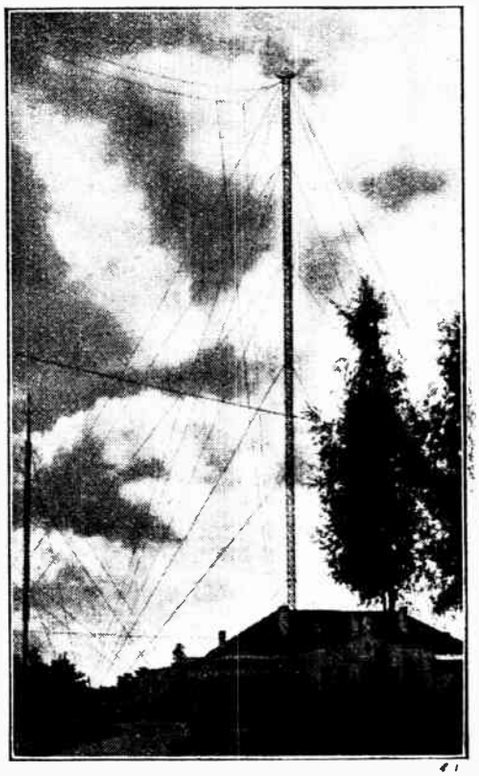
KAUNAS is the "provisional" capital of Lithuania, the historical capital of the country, Wilna being under Polish occupation. The station, which, incidentally, employs Europe's longest broadcasting wavelength, stands on a hill immediately above the town. During the war a Russian transmitter stood there, and on my recent visit I still saw the Russian masts in the beautiful grounds in which the present transmitter stands.

Lithuanian broadcasting is controlled by the Ministry of Posts on the technical side and by the Ministry of Education in the matter of programmes.

The officials at Kaunas are very friendly, but as no one at the station understands English the visitor must make what use he can of his knowledge of Russian, German and French. However, I met a local journalist who spoke excellent English with a slight Oxford accent which, he said, he had acquired from listening to B.B.C. announcers! He had never been farther west than Germany.

Kaunas transmits every day, but I fear that few people take the trouble to search for the longest wavelength. But I can promise you a good evening's entertainment if you should hit upon old Pupa Dede, a contemporary author who every Saturday night poses as the oldest inhabitant. Perhaps he is not so simple as he sounds, for gramophone companies once took him over to America to make records of his wonderful renderings of Lithuanian folk songs.

WANDERING WAVE.



The station buildings, which stand on a hill overlooking the town, originally formed part of a Russian fortress.

Mlle. Irene Garmiute, the announcer, giving the Kaunas time signal. Note the candle for use in the event of a lighting failure!

DISTANT RECEPTION NOTES

SO far I have not heard (nor have I received reports from others who have done so) any of the new high-powered Continental stations which are expected to be starting test transmissions this spring. There is an extraordinary crop of them, and we shall, no doubt, be hearing a good deal of them within the next few weeks. The giants that are to come into full operation before the summer is out include Budapest, Vienna, the two Brussels stations, Belgrade, Bucharest, Hamburg, and probably Madrid Union Radio within the limits of the medium waveband. The most important high-powered newcomer expected on the long waves is Kalundborg.

Progress with the French broadcasting scheme, known as the General Ferrié Plan, seems to be rather slow. The only official high-powered stations under this scheme now in operation are Radio-Paris, the Poste Parisien and Bordeaux Lafayette. All of the P.T.T. stations are State property, but the great majority of these have quite small plants rated at from a fraction of a kilowatt to 2.5 kilowatts. Most of them will eventually be replaced by 20-kilowatt or 60-kilowatt transmitters. The Eiffel Tower, which, one understood, was to fade out shortly after the taking over of Radio-Paris, still continues to transmit programmes. Work has started on the new 60-kilowatt transmitting station at Nice, which is eventually to replace the 0.8-kilowatt Juan-les-Pins.

Atmospherics Below Normal

There has been very little trouble from atmospherics so far this year, which is as it should be since we are approaching a sunspot minimum. At the time of writing the surface of the sun is entirely clear of spots, and it is to be hoped that it will remain so during the coming months. Summertime reception depends very largely upon the presence or absence of atmospherics. When these are frequent, even if they are of the mild kind, it is virtually impossible to obtain reproduction of genuine entertainment value from any but the nearer or more powerful stations. To receive those that are weaker and farther away the set must be made sensitive, with the result that if atmospherics are about they are often brought out so strongly as to interfere badly with the transmission, if not indeed to drown it altogether.

Should the summer prove to be, as the indications are that it should, much freer from atmospherics than those of the past two or three years have been, there is no reason why foreign station reception should not be good during the warm months.

The long waves are generally the worst affected by atmospheric interference. Since there is none worth mentioning just now, reception of the long waves is wonderfully good at all times.

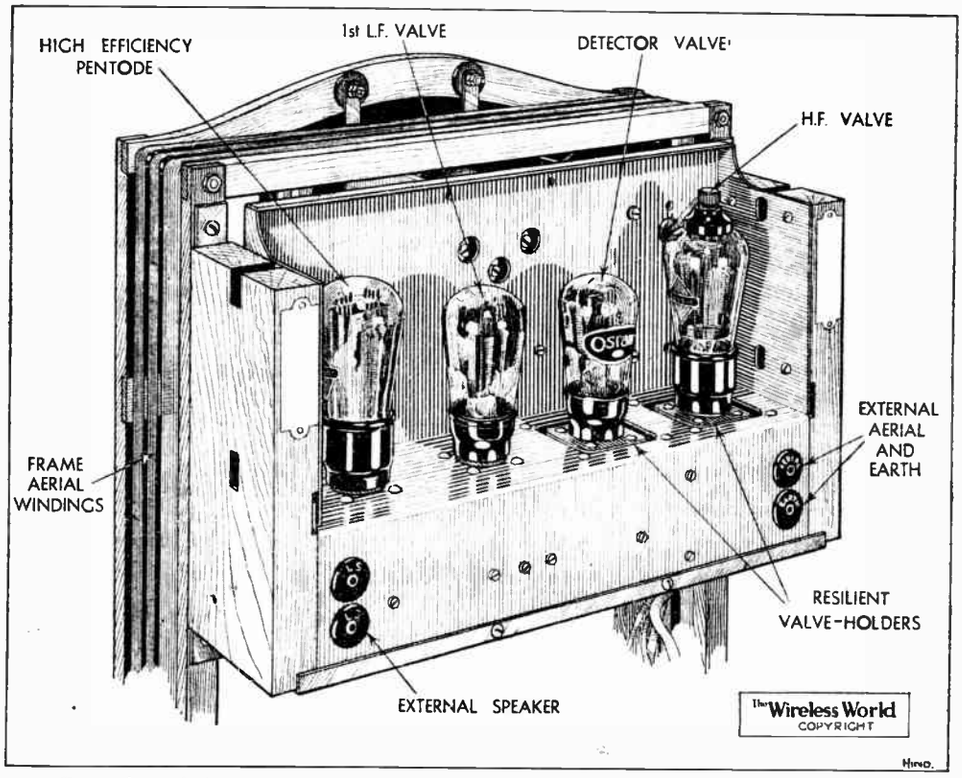
I have been trying for a long time to discover just which station was responsible for the persistent heterodyne upon Beromunster. There is no question that it is of Russian origin, as are a good many other unwelcome whistles that we experience. The Russian Government is considering a ridiculous programme embracing the erection of a further score or more of high-powered stations, of which there can be no genuine need. It is to be hoped that they may be brought to see the error of their ways before it is too late.

D. EXER.

McMICHAEL Duplex Four TYPE CMC

A Four-valve Battery Receiver with Frame Aerial

Features: *A self-contained 4-valve battery set with frame aerial. Permanent-magnet moving-coil loud speaker. H.T. consumption 8 mA. Single H.F. and two L.F. stages. Pentode output. Automatic grid bias. The controls include (1) ganged tuning, (2) trimmer, (3) wave-range, (4) reaction, (5) volume control and combined on-off switch.* ***Price,*** *17 guineas.* ***Makers:*** *McMichael Radio Ltd., Slough, Bucks.*



Rear view of the robust metal chassis, which can easily be removed from the cabinet.

THE name "McMichael" runs through the history of portable receivers from their earliest days, and to those listeners familiar with earlier McMichael portables it will seem only natural that the new Duplex Four should provide its owner with a highly satisfactory performance. Actually, the set gives results comparable with those of a mains receiver. Selectivity is of a high order, especially if use is made of the directional properties of the frame aerial.

The power output of about 350 to 400 milliwatts is sufficient for all normal requirements and is derived from a high-efficiency pentode working into a permanent-magnet moving-coil speaker, the applied H.T. voltage being 115 to 120. That the speaker and matching transformer combination have been well chosen is apparent from the quality of reproduction which has been carried down farther into the bass than is usual in battery sets.

At the other end of the frequency scale the rendering is pleasing, and all shrillness has been removed by the use of a limiting condenser across the primary of the output transformer.

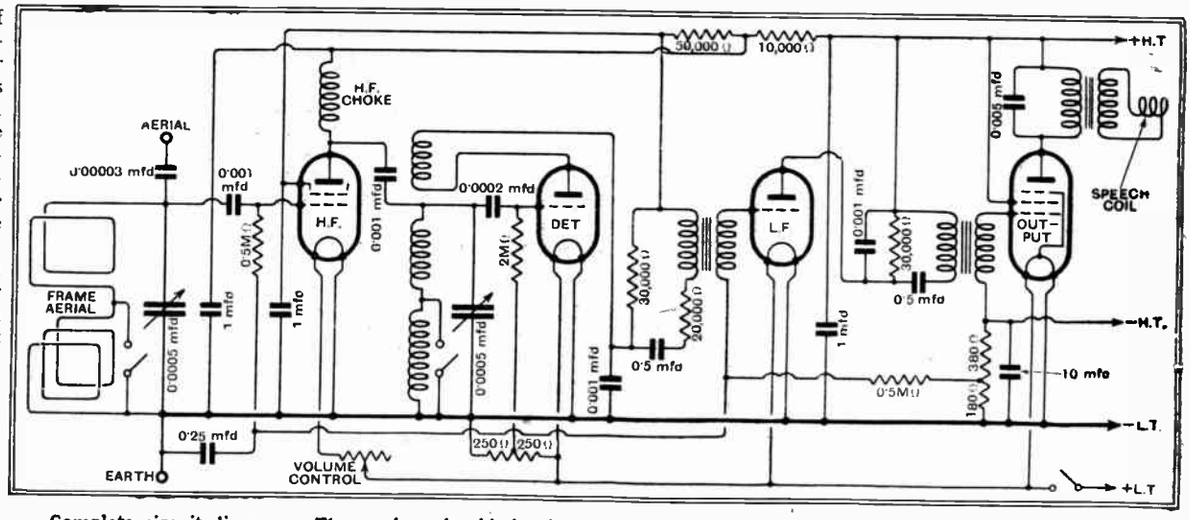
There is little need to press reaction since the range is good—a fair choice of foreign programmes being possible on the medium waveband in broad daylight. The inclusion of two sensitivity controls is of great advantage in obtaining the very best performance even in difficult conditions, for by operating the input volume control and making good the consequent loss of signal strength by reaction many additional foreign transmissions can be enjoyed.

The action of the volume control, which consists of a filament rheostat on the H.F. valve, is a little disconcerting at first, as one has to wait for quite an appreciable period until the full effect is evident. This, of course, is due to the slow heating of the filament. After very little experience, however, the pre-judging of the best position of this control becomes quite simple. The tuning control is exceptionally well designed with an open white scale, calibrated in wavelengths and commendably easy to read. Exact resonance of the two-gang circuit is ensured by the small movement of a trimmer, the control of which is brought out to the panel.

There is an ingenious wave-range switch which causes the tuning indicator to point to the appropriate wavelength scale. On the left of the cabinet the reaction adjustment is to be found. This does not consist of the usual capacitive control but of a variable magnetic coupling, use being made of a small ball rotor.

The circuit contains a number of interesting points. Automatic bias for the H.F. and two L.F. valves is derived from a tapped resistance in the H.T. – lead, and a critical positive potential for the grid detector is obtained from a potential divider across the L.T. supply. Both L.F. stages rely on the parallel-fed transformer system of coupling.

The cabinet, which is mounted on a turntable, has pleasing lines and is beautifully finished.



Complete circuit diagram. The anode and grid circuits are well decoupled, and there is a magnetic control of reaction.

BROADCAST BREVITIES

By Our Special Correspondent

Director of Gramophone Programmes

UNBEKNOWN to the general public, a new department has been formed at Broadcasting House within the last few weeks. Although it bears no official title it could well be described as the "Gramophone Programmes Section." It constitutes a distributing centre for all gramophone records broadcast, and when, last week, I talked with the Director of the new department, it soon became evident that he and the seventeen members of his staff have work on their hands which will keep them busy all the year round.

Centralisation

Whereas in former days each station director had his own pet collection of records for broadcasting in odd moments at his own sweet will, the new gramophone department now provides the records and, what is more, chooses and arranges the programme.

Records in Bins

At the moment there are some 10,000 records reposing in the new steel bins in the gramophone department. They are stored twenty to a bin in such a way that any record can be extracted at a moment's notice. They consist for the most part of the standard musical works—major symphonies, light classics, and what the Director of the section aptly termed a "movable feast" of dance records. These last are not kept for more than a few weeks.

A Record Library

The records chosen for permanent storage should make a fitting nucleus for one of the biggest record libraries in the world.

However, the B.B.C. cannot hope to rival the British Museum Record Library, which obtains *and retains* a copy of every record placed on the market.

Feverish Activity

Meanwhile seventeen people are busily cataloguing the records as they come in, compiling programmes for this and that provincial station, despatching the gleaming discs north, east, south, west, and—perhaps the worst job of all—examining them on their return for wear and tear.

Ten Years Hence

It will be in a few years' time, perhaps a decade, that this library will become really valuable, especially if, as some prophets declare, the disc has then been displaced by the film record.

A Resumed Tour

BON VOYAGE to Mr. Malcolm Frost who, to-morrow (Saturday), resumes his world travels on behalf of the B.B.C. It will be remembered that Mr. Frost was stricken with malaria last December when he had proceeded no farther than Cape Town. This time he is taking his Empire records to Australasia, *via* New York and Canada. I hear that he plans to reach Auckland, New Zealand, on May 15th, whence he will travel to Australia, and after crossing the Commonwealth, on through the Malay Straits to Ceylon and India.

A Director to Tour?

He will not attempt to distribute the records in Canada because, according to present arrangements, the Dominion is to be visited in the near future by one of the B.B.C. officials controlling Empire broadcasting. Indeed, it is quite probable that Mr. Cecil Graves, Director of the Empire service, will himself cover the Dominion, perhaps in a tour with Mr. Gladstone Murray, the B.B.C. publicity chief.

The Room of the Seven Clocks

FOR sensitive listeners it is rather disturbing to step into a room containing seven identical clocks standing side by side on the shelf, all working in synchrony, but all showing different times. This is the surprising sight which greets anyone who visits the office of the Empire Press Section of Broadcasting House, for each of these electrically controlled clocks serves to indicate the time in one of the Empire zones.

One Under the Eight

Four zones have one clock each, while Canada, although contained in Zone 5, has two clocks, as the time difference between East and West is not less than five hours. One of the clocks shows G.M.T.

THE PRESIDENT'S OWN. This is the special microphone presented by the Columbia Broadcasting System to President Roosevelt and used by him at his inauguration ceremonies. The microphones are for public address, broadcasting, gramophone recording and news films.

Easter Sunday

ON Easter Day (April 16th) the morning service will be relayed from York Minster to National listeners. The address by the Archbishop of York will be broadcast.

Talk on Motor Racing

MR. S. C. H. DAVIS, of *The Autocar*, is broadcasting a talk to-morrow (Saturday) on the highly topical subject of "Motor Racing."

Davis at one time did quite a lot of racing himself. It may be recalled that in 1927 he was the winner of Le Mans Grand Prix d'Endurance with J. D. Benjafield. In 1930 he was the winner of the B.R.D.C. five hundred miles race at Brooklands, when he drove an Austin with Lord March.

A Famous Bell

DURING the relay from Dover on April 23rd of the annual memorial service to the men of the Dover Patrol who fell at Zeebrugge fifteen years ago, the famous Zeebrugge Bell will be heard at the ceremony outside St. Mary's Church. This bell was used by the Germans at the Mole, Zeebrugge, to warn the people against British air attacks and later was presented to Dover by the King of the Belgians. Normally the bell hangs in the belfry of Dover Town Hall, but it is being transferred to the West Door of St. Mary's Church for the broadcast.

"The Ringer" on Wednesday

THE services of Miss Dorothy Dickson have been secured for the first broadcast of "The Ringer," by Edgar Wallace, on April 19th and 21st. Miss Dickson will take the part of Cora Ann Milton, a character which she created at Wyndham's Theatre in 1926.

Wembury will be played by Evelyn Roberts, Bliss by Ben Welden, Samuel Hackitt by Ivor Barnard, Maurice Meister by Phillip Leaver and Ronald Simpson will appear as Doctor Lomond. The play will be produced by Val Gielgud.

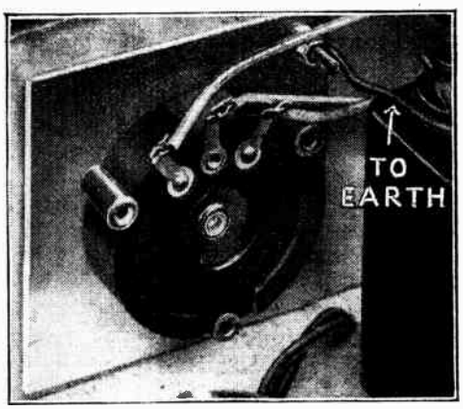
If the broadcast "Ringer" is anything like as good as the stage and film versions, listeners have a real treat in store.

The Mixture as Before

THOSE of us who hoped that the B.B.C. would strike out with something new in the way of architectural designs for the new station at Droitwich are to be disappointed.

I learn that in appearance the station will resemble those of the Regional scheme in all except size. The familiar square, sugar-box outlines will become part of the landscape at Wychbold, where Messrs. Higgs and Hill will begin constructional work in a few weeks' time. Indeed, to a distant observer, the only apparent difference between Droitwich and the Regionals will be found in the disposition and shape of the masts.

READERS' PROBLEMS



An anti-hum device; a metal shield is fitted between the potentiometer and front panel of the A.V.C. Monodial.

The A.V.C. Monodial

THERE is some uncertainty as to the small metal screen which was specified for the Monodial receiver in its latest form (with A.V.C.).

This screen, which is merely a small sheet of aluminium measuring about 2½in. square, is fitted behind the volume-control potentiometer, by the fixing nut of which it is secured in position. A terminal is fitted to the screen, in order that it may be earthed to the nearest convenient point.

The purpose of the screen is to avoid the possibility of hum, which might otherwise occur when the user's hand is brought into proximity with the control knob.

Detector Circuit Decoupling

IN a typical modern set, it is safe to conclude that the most practicable way of curing motor-boating is to increase the amount of decoupling provided in the detector anode circuit.

Unfortunately, the modern detector valve generally takes quite a lot of current, and so it is hardly possible to make any worthwhile increase in the value of the associated decoupling resistance. This leaves us with the alternative—and it is quite a practical one—of increasing the size of the by-pass condenser, which should, and usually does, have the desired effect.

A reader asks whether a high-capacity electrolytic condenser would be suitable at this point. Although these condensers are more generally employed for smoothing purposes, there is not the slightest reason why they should not be employed for decoupling in L.F. circuits.

Economical Volume Control

NOT the least of the advantages of a variable-mu battery valve is that its anode current consumption may be reduced by the application of negative bias. When receiving strong signals, for which full magnification is not needed, it is obviously much more economical to use a grid bias control than any other method which does not have any effect on the current consumption of the set.

We are reminded of this by a request for criticism from a reader who is planning a simple H.F.-det.-L.F. set, in which he proposes to use no other form of volume control than reaction and a series aerial condenser. The H.F. valve is to be of the variable-mu type, and we think it would be a thousand pities to forgo the advantages it offers in the way of combining an efficient volume control with economy. A grid bias potentiometer for the H.F. stage should certainly be fitted, as the slight extra expense will be more than repaid by reduced cost of H.T. battery upkeep.

For Short Aerials

WHEN working under adverse conditions, it is particularly necessary to make every effort to obtain maximum efficiency in all the receiver circuits. For instance, the standard method of coupling a long outside aerial to the first tuned circuit of the set is unlikely to be the best possible arrangement to adopt when an exceptionally short and almost vertical aerial is employed.

A reader, who is forced by circumstances to use a relatively inefficient aerial of this type, has asked for information as to how this handicap may best be offset by taking suitable precautions in the input circuit, and asks whether it would be worth while to rewind the primary coils of the aerial-grid input transformer.

We think it would hardly be worth while to do this. With a very short aerial of low capacity, it is generally best to couple it to the high-potential end of the input tuned

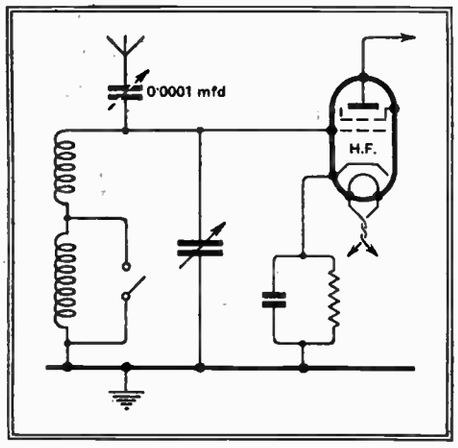


Fig. 1.—When an exceptionally short aerial is fitted, the simplest method of coupling is generally the most efficient.

circuit through a small semi-variable condenser in the manner shown in Fig. 1. We are assuming that the various circuits of the receiver are to be tuned by a ganged condenser, and if this is so, it would be as well to remove the trimmer of the section which controls the input circuit, and to make trimming adjustments by means of the series-connected aerial condenser.

Pentode *versus* Triode

ONE of the great advantages of a pentode output valve is that the input voltage required for full loading of its grid circuit is relatively small. In practice, this means that most of the pentodes in common use may easily be fed directly from the detector valve without the need for an intermediate L.F. stage.

This point should be borne in mind by those who wish to substitute a three-electrode output valve in a receiver for which provision has been made for a pentode in the original design. The rule to remember in such cases is that whatever type of valve is to be used should not normally be rated to work with an appreciably greater grid bias voltage than that of the original valve specified. The detector output is, of course, the limiting factor here, and usually there is not very much margin of safety. The particular case we have in mind at present is that of a reader who wishes to substitute in the Ferrocart III a valve requiring about three times the bias—and consequently about three times the input—of the specified pentode. It is extremely doubtful if the undistorted output of the detector as described would be sufficient to load up the proposed valve.

THESE columns are reserved for the publication of matter of general interest arising out of problems submitted by our readers. Readers requiring an individual reply to their technical questions by post are referred to "The Wireless World" Information Bureau, of which brief particulars, with the fee charged, are to be found at the foot of this page.

Erratic Contact

WHEN a potentiometer-operated volume control of the modern type fails to produce smooth and gradual changes in intensity as the control knob is rotated, it is generally to be suspected that the contact brush is making in certain positions an imperfect contact with the resistance element.

In spite of the fact that a reader, who complains of erratic functioning of this control, has examined his potentiometer carefully, we are inclined to think that the trouble described is most probably present. His potentiometer controls the grid voltage of a variable-mu H.F. valve, and we suggest that a conclusive test should be made by wiring a milliammeter in series with the anode circuit of this valve. With the potentiometer set at minimum volume, the meter should read practically zero, and the current indicated should rise progressively and steadily as the control knob is rotated towards the "maximum" position.

THE A.V.C. UNIT: AN OMISSION

A double-pole switch (S and S1) of "W.B." manufacture was inadvertently omitted from the list of parts published in the issue of March 31st.

The Wireless World INFORMATION BUREAU

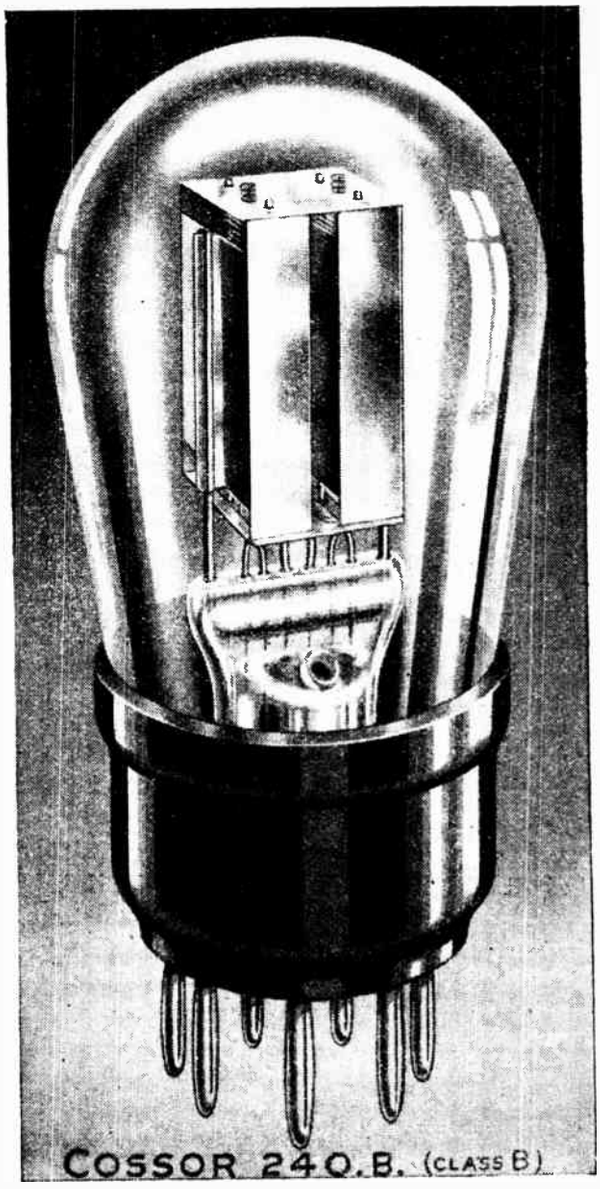
THE service is intended primarily for readers meeting with difficulties in the construction, adjustment, operation, or maintenance of wireless receivers described in *The Wireless World*, or those of commercial design which from time to time are reviewed in the pages of *The Wireless World*. Every endeavour will be made to deal with queries on all wireless matters, provided that they are of such a nature that they can be dealt with satisfactorily in a letter.

Communications should be addressed to *The Wireless World* Information Bureau, Dorset House, Stamford Street, London, S.E.1, and must be accompanied by a remittance of 5s. to cover the cost of the service. The enquirer's name and address should be written in block letters at the top of all communications.

COSSOR 240B

—the new valve for

CLASS "B" AMPLIFICATION

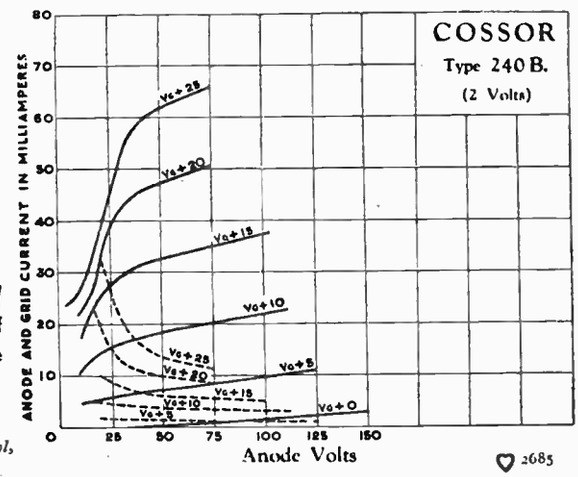


KINGS OF THE AIR

Volume equal to that of the average Mains Receiver is now obtainable from Battery Sets with this new Cossor Valve, and with this remarkable output, the H.T. Current demand of the Cossor 240 B. is lower than that of a small power valve. Thus, a really large output is obtainable without in any way over-stressing the average H.T. Dry Battery.

Filament volts 2.0; Filament amps. 0.4; Anode volts 150 max.; Max. Anode Current Swing 50 mA.; Max. Peak Applied Signal (Grid to Grid) 40 volts; Static Anode Current at Va=100, Vg=0 (each half) 1·5 mA. Price **14/=**

Full instructions for the use of this remarkable new valve, including circuit diagrams will be supplied on application to our Technical Service Department.



Anode and Grid Current/ Anode volts curves of Cossor Class "B" Valve Type 240 B.

A. C. Cossor Ltd., Highbury Grove, London, N.5. Depots at Birmingham, Bristol, Glasgow, Leeds, Liverpool, Manchester, Newcastle, Sheffield, Belfast, Cardiff and Dublin.

♡ 2685

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Complete Constructional Details of

The Wireless World
THE PRACTICAL RADIO JOURNAL

MONODIAL A.C. SUPER

A SEVEN-VALVE SUPERHETERODYNE RECEIVER OF OUTSTANDING PERFORMANCE

By W. T. COCKING

This booklet contains in a compact form the original articles which appeared in "The Wireless World" some months ago.

It describes at length, with full explanations and illustrations, a superheterodyne receiver for A.C. Mains which is still unchallenged for faithful reproduction and exclusive selectivity.

Since the Monodial A.C. Super was first described, many thousands have been built, and no single instance of failure or disappointment with the performance due to difficulties of construction, has come to light. The Receiver is an ambitious one, but the design is straightforward, and a simplified method of construction has been adopted.

For quality, range and selectivity, the performance is unsurpassed by any known receiver.

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W.W.38

DICTIONARY of WIRELESS TECHNICAL TERMS

Compiled by S. O. Pearson, B.Sc., A.M.I.E.E., and issued in conjunction with "THE WIRELESS WORLD." Second Edition. Completely revised and brought up to date.

This handy volume is very much more than a Dictionary. It not only takes the technical terms of wireless and explains their meaning, but in doing so it concentrates into a small space a large amount of information on wireless subjects. It has become, in fact, a compendium of current wireless knowledge, and an invaluable handbook for all who are interested in wireless transmission and reception. Diagrams and illustrations are freely interspersed throughout the book to amplify the explanations of the text.

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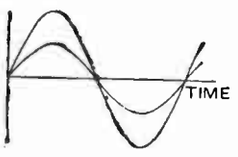
Facsimile Page from the Second Edition

Impulse Excitation. Method of starting *high-frequency oscillations* in an aerial system or *oscillatory circuit* by a sudden surge, *e.g.*, a spark, and not by applying an oscillating voltage of the same frequency as that of the tuned circuit. Sometimes called "shock excitation."

In Phase. Two alternating quantities are said to be "in phase" if they have the same frequency and pass through their respective maximum and zero values at the same instants. The definition applies only where the two waves



Sine waves in phase.

are of the same shape. See PHASE DIFFERENCE.

Indirectly-heated Valve. The type of valve in which the cathode is indirectly heated by a separate heater resistance, the cathode being a hollow cylinder to accommodate the heater within it. The heater may be supplied with A.C. or D.C.

Induced Current. A current produced in a circuit by an *induced E.M.F.*, *i.e.*, by a changing of the magnetic flux linked with the circuit.

W.W.48

35/- OSBORN

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Model No. 201. Same Osborn standard of workmanship but at this amazing price—**35/-** in figured Oak. 3' 2" high. 1' 10" wide. 1' 4" deep. Height between motor-board and baseboard 12½". Height for pick-up 4". Accommodates a baseboard 18" × 14" or smaller. Ample room for any type of speaker and batteries. Mortised and tenoned throughout. Silk fabric, baffle board and baseboard are included. The panel above fret will be cut to your specification.

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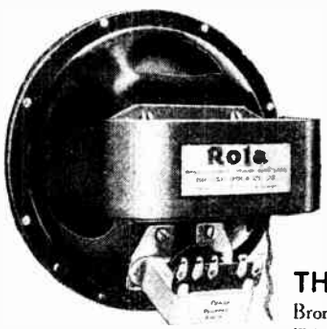
Selected for "THE WIRELESS WORLD"



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Before deciding on a speaker for your Class "B" Ferrocart Receiver *insist* on your dealer demonstrating this Rola model. Only by comparison can you fully appreciate the unchallengeable supremacy of Rola realism in the field of radio reproduction. Greatly improved reception will be a more than adequate return for a slightly increased expenditure.

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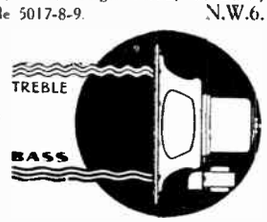
There is a correct Rola Extension Speaker for practically all British Radio Receivers.

Write for list.

ROLA SPEAKERS *for better Radio Reception*



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Mount *YOUR* Speaker in this Cabinet and notice the improvement.

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ADVERTISEMENTS for these columns are accepted up to **FIRST POST on MONDAY MORNING** (previous to date of issue) at the Head Offices of "The Wireless World," Dorset House, Stamford Street, London, S.E.1, or on **SATURDAY MORNING** at the Branch Offices, 19, Hertford Street, Coventry; Guildhall Buildings, Navigation Street, Birmingham, 2; 260, Deansgate, Manchester, 3; 26n, Renfield Street, Glasgow, C.2.

Advertisements that arrive too late for a particular issue will automatically be inserted in the following issue unless accompanied by instructions to the contrary. All advertisements in this section must be strictly prepaid.

The proprietors retain the right to refuse or withdraw advertisements at their discretion.

Postal Orders and Cheques sent in payment for advertisements should be made payable to ILIFFE & SONS Ltd., and crossed & Co. Notes being untraceable if lost in transit should not be sent as remittances.

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- Special P.A. Speakers suitable for all outputs.
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- The most up-to-date apparatus for outdoor or indoor sound reproduction and Radio reception.

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For the convenience of private advertisers, letters may be addressed to numbers at "The Wireless World" Office. When this is desired, the sum of 6d. to defray the cost of registration and to cover postage on replies must be added to the advertisement charge, which must include the words Box 0000, c/o "The Wireless World." All replies should be addressed to the Box number shown in the advertisement, c/o "The Wireless World," Dorset House, Stamford Street, London, S.E.1. *Readers who reply to Box No. advertisements are warned against sending remittance through the post except in registered envelopes: in all such cases the use of the Deposit System is recommended, and the envelope should be clearly marked "Deposit Department."*

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SPECIAL NOTE.—Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post. When sending remittances direct to an advertiser, stamp for return should also be included for use in the event of the application proving unsuccessful.

IMPORTANT NOTICE.

Owing to the Easter Holidays, the next issue of "THE WIRELESS WORLD" (dated April 21st) is closing for press earlier than usual.

In accordance with the Notice that appeared last week, the latest date upon which Miscellaneous Advertisements could be accepted for the above issue was FIRST POST THURSDAY, April 13th.

RECEIVERS FOR SALE.

D.C. Monodial, as specified, with valves, no cabinet or speaker, all soldered connections; bargain, price £12/10.—Lownds, The Cottage, Old Lenton, Nottingham. [2309

COLUMBIA 28-guinea Radiogram, little used, as new; £15.—Box 6627, c/o *The Wireless World*. [2396

NEW R.G.D. Radiogram, 9-valve, type 901, oak, never used 100-250 volt A.C. all-mains; cost £84, sacrifice £60.—Box 6636, c/o *The Wireless World*. [2404

LEWCOS S.G.3, with valves, perfect condition, oak cabinet; £3 15.—71, Taunton Av., Hounslow. [2405

UNUSED 3-valve All-electric A.C. Band Pass Receiver, moving coil speaker; cost 16 guineas, sacrifice 8 guineas.—Write 82, Hamlet Gardens, Ravenscourt Park, W.6. [2406

BETTER Part Exchange at Appleby's, the originators of Radio Part Exchange over 14 years ago.

LIBERAL Allowances can be Made on Modern High Grade Radio Apparatus in Part Exchange for New; transactions by mail to any part.

A RELIABLE and Accurate Service, patronised for years by thousands of readers of this journal, controlled by reasonable terms for the benefit of its users and the value of their credits.

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PARTICULARS of This Service Will be Forwarded on Request; applications for quotations of approximate allowances should be accompanied by two 1½d. stamps; damaged and obsolete material cannot be accepted.

APPLEBY'S, 109, Edgware Rd., Hyde Park, London, W. Factors and Valuers of Radio. [2414

OSTAR-GANZ 2-valve Combined A.C. and D.C. Receiver, in modern walnut cabinet, with Rola M.C. loud speaker, unopened; list price 10 guineas, our price £4/15; c.o.d., carriage paid; state voltage.—Kay, 167, City Rd., Finsbury, London, E.C.1. [2302

H.M.V. Radiogram 522 Model, A.C., universal voltage, automatic record changer, only 6 months old, perfect, as new; listed £48, sacrifice £30.—Newman Bros., 6, Gledhow Terrace, Old Brompton Rd., S.W.5. [2442

NEW Aerodyne Hawk Battery Set, cost 14 guineas, owner getting mains set; £9.—Write R. C. Byng, 6, Sussex Gardens, W.2. [2439

GREAT SUCCESS of the 'W.W.' MONODIAL with A.V.C. as built by

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"W.W." MONODIAL with *AUTOMATIC VOLUME CONTROL* and 5-Watt (A.C.) Output assembled with de luxe workmanship, tested and adjusted by experts, including Royalties and delivery FREE in Gt. Britain. **£42-0-0** (or 1st deposit of £5 5 0; balance over 12months).

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Receivers for Sale.—Contd.

"THE Wireless World" D.C. Super 5 Set, complete, with Marconi valves, in polished mahogany case perfect condition, very little used, demonstration willingly given in London, N.W.; cost £28, £10 for quick sale.—Box 6647, c/o *The Wireless World*. [2435

MONODIAL A.C. Super, with or without power unit, complete with valves; offers wanted, stamp reply; also components for sale.—45, Woodland Lane, Chapeltown, Leeds. [2428

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VORTEXION, Wimbledon, for the latest type transformers, all with screened primaries and 12 months' guarantee, absolute reliability (we supply talkie equipment); regulation guarantee within 5% all models except supers, which are 2%; you cannot buy more reliable or better looking transformers, not a pressed shrouding, but a substantial casting free from hum.

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VORTEXION.—250-0-250, 4v. 1 to 2a., 4v. 2 to 4a.; open type 10/6, shrouded 12/6; post 9d.

VORTEXION.—Models for Westinghouse, H.T.5, 6, or 7, 4v. 2-4a.; 10/6, shrouded 12/6; post 9d.

VORTEXION.—Open type H.T.8 model, 4v. 4a.; 12/6; post 1/-.

VORTEXION.—Super model for H.T.8 or 9 or 10, 4v. 1 to 2, 4v. 2 to 4; open type 14/6, shrouded 16/6; post 1/-.

VORTEXION.—H.T.11 model, open type, terminals, 35/-, filaments to specification; shrouded, 40/-; post 1/3.

VORTEXION. 2½-watt Monodial A.V.C. model; open type 14/6, shrouded 16/6; post 1/-.

VORTEXION. 5-watt Monodial A.V.C. model, 400-0-400, 120 ma., 4v. 6a., 4v. 3½a., 4v. 2, 4v. 1a., super screened; 20/-, shrouded 24/-.

VORTEXION. 350-0-350, 120 ma., 4v. 2 to 5a., 4v. 2 to 4a., 4v. 2.5a.; open type 14/6, shrouded 16/6.

VORTEXION.—400 or 450 or 500v., 120 ma., 4v. 2 to 5, 4v. 2 to 5, 4v. 2 to 5; open type 19/-, shrouded 23/-.

VORTEXION.—400 or 450 or 500, 150 ma., 4v. 4a., 4v. 2.5, 4v. 2, 4v. 2, 4v. 2, core size 2½in. × 1¾in., a super job, 2% regulation; 35/- shrouded, with terminals, less terminals 30/-, open type 26/-; post 1/3.

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VORTEXION. Chokes, 20 h. at 120 ma., 8/6; 30 h. at 60 ma., 5/6; 30 h. at 150 ma., open type 10/6, shrouded 12/6; post 1/-.

VORTEXION.—Last few 750v. D.C. working condensers, 6 m.f., to clear at 5/- each, list price 21/6; post 6d.

VORTEXION.—Transformers made to your specification.

VORTEXION, 182, The Broadway, Wimbledon. Tel.: Liberty 2814. [2424

Chargers and Eliminators.—Contd.

TANTALUM for A.C. Chargers, H.T. and L.T.—Blackwell's Metallurgical Works, Ltd., Garston, Liverpool. [2139

A.C. Charging Plant, unused; cost £18/18, for £6/15/6; write for makers' specification.—Jersey, Cumnor Hill, Oxford. [2310

TRICKLE Chargers, 2-6v., with Westinghouse rectifiers, complete, ½ amp., 11/9; 1¼ amp., 19/11; 7 days' trial; postage 9d.; illustrated list free.—Arden Agency, Wellaston, Wellingborough. [2273

REGENTONE Eliminator, W2, 200v. 100 m.a., 4 tappings (2 variable), heater current, 4v. 4a.; cost £10 1932, as new; £4.—Davis, 22, Dalkeith St., Walsall. [2416

WESTINGHOUSE Charger, R9C.I., 200-240v. A.C., as new; list £40, bargain, £25.—"Receiver," 19, Stafford Rd., Waddon. [2402

SERADEX Radio Products.

FERROCART Class B Receiver, uses 1 each type M-150 resistors, 100 ohms, 250 ohms, 5,000 ohms, 40,000 ohms, 50,000 ohms, and ½ meg.; set 6 4/-, post free or from your dealer.

FERROCART Class B Receiver, uses the following condensers, 4 type B 1 mfd. and 1 type B 2 mfd.; set of 5 post free 8/5, or from your dealer.

SERADEX V.R.328 Battery Charger, will charge up to 11 cells at 1.3 amps.; complete in case £2/5, valve extra 17/6; a wonderful job.

ORDER From Your Dealers or Direct From Makers, Trevor Pepper, Wake Green Rd., Birmingham. [2353

CABINETS.

RADIO-GRAM Cabinets; fully illustrated list free; remarkable values.—Gilbert, Cabinet Maker, Swindon. [1686

WE Can Supply Brand New Complete Gramophones, London made cabinets, at less than the cost of cabinets; ideal for converting to radiograms; 28 models to choose from; 52/6 to £10; illustrated list free.—Radley's, Ltd., Canal Rd., Bradford. [1786

DYNAMOS, ETC.

M-L Rotary Transformer, D.C., A.C., model H.J.A., 200 watts 230 volts, with starter, anti-interference unit and soundproof cover; £12.—Drew, 31, The Terrace, Barnes. [2394

NECO 230-volt D.C. to 230-volt A.C. Converter, 400 watts, perfect condition; £7/10.—Henderson, 90, Katherine Rd., East Ham, E.6. [2397

6-VOLT 15 Amp. Generators, suitable for charging or lighting, guaranteed; 7/6 each, carriage forward.—Wickham, 18a, Hercules Rd., Lambeth, S.E.1. [2426

GRAMOPHONES, PICK-UPS, ETC.

H.M.V. Automatic Playing Desk, A.C., new, £9/10; 2-valve A.C. receiver, £3/19.—130, Burns Av., Southall. [2415

B.T.H. A.C. D.C. Gramophone Motor, 63/- model, 25/-; B.T.H. Senior pick-up, 19/6; both as new; stamp for list of other bargains.—Morris, Webb St., Stockingford. [2436

LOUD-SPEAKERS.

B.T.H. R.K. Moving Coil Speakers, guaranteed new, unused, manufacturers' surplus, original price 6 guineas, highly sensitive and wonderful tone response, will handle up to 10 watts output, available for 6v., 100v., 200v., 30/-; also A.C. models, £2/10; carriage paid, c.o.d., or cash with order; the best value in speakers obtainable to-day.—Seekamp, 46, Farringdon St., London, E.C.4. [2425

COLUMBIA A.C. and D.C. Moving Coil Speakers, fitted variable ratio transformers in attractive figured oak cabinets; from 37/6 complete.

ALL Types of Moving Coil Speakers, pots and windings, etc.; going cheap.—R. Newman, 309, Roman Rd., Bow, E.3. [2418

FERRANTI Cabinet Speaker, M.T.1 (oak), cost £15/5 (1931), boxed, as new; £6, or will separate.—Davis, 22, Dalkeith St., Walsall. [2417

30/- !!—B.T.H. R.K. moving coil speakers, 6in. cone, new and unused, guaranteed; these speakers are type as used in cinema sound equipment; suitable for public address work; weight 30lb., and are vastly superior to cheap speakers now on the market, 100 volts, 150 volts, and 200 volts D.C.

27/6 !!—6v. D.C. speaker, as above; £2/7/6, speaker as above, for 100-250 A.C.; Epoch Super Cinema speakers, £5/10.

CARRIAGE Paid, cash with order, or c.o.d.—Ward, 12, Tredegar Rd., Bow, E.3. [2431

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VALVES, as new: M.S.4s, A.C./S.G.s, M.H.4s, A.C.2/H.L.s, M.H.L.4s, P.X.4s, Pen.220s, M.P.T.4s, P.T.625s, H.L.2s, S21s, S.G.215s; all half list prices.—Box 6628, c/o *The Wireless World*. [2395

ALL Valves Guaranteed as New; carriage paid or call:—M.V.S.G., A.C./S.G./V.M. (metallised), 10/6; M.S.4B. (metallised), A.C./S.G., A.C./S.2 (metallised), 8/3; S.4V.B. (metallised), 8/-; 41M.S.G., 8/6; M.S.4, 7/-; M.P.T.4, 9/3; A.C. 064, 4/6; V.D.S., 8/3; D.C./S.G., 5/-; D.C./H.L., 4/-; D.C./PEN., 6/6.—Mains Radio Development Co., 4-6, Muswell Hill Rd., London, N.6. [2420

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POLAR 3 Gang Condenser and Drive, specified for Class B Ferrocart receiver, unused; 24/-.—Wilson, 62, Pellerin Rd., N.16. [2432

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VARLEY Constant Square Peak Band Pass Coil, 7/6; Varley OSC coil, BP20, 4/6.

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MARCONI Ideal Transformers, ratio 2.7-1 and 4-1, 5/6; R.I. Pentamu output transformer, 8/9; R.I. multi ratio P.P. output transformer, 11/6; B.T.H. multi ratio output transformer; 6/-.

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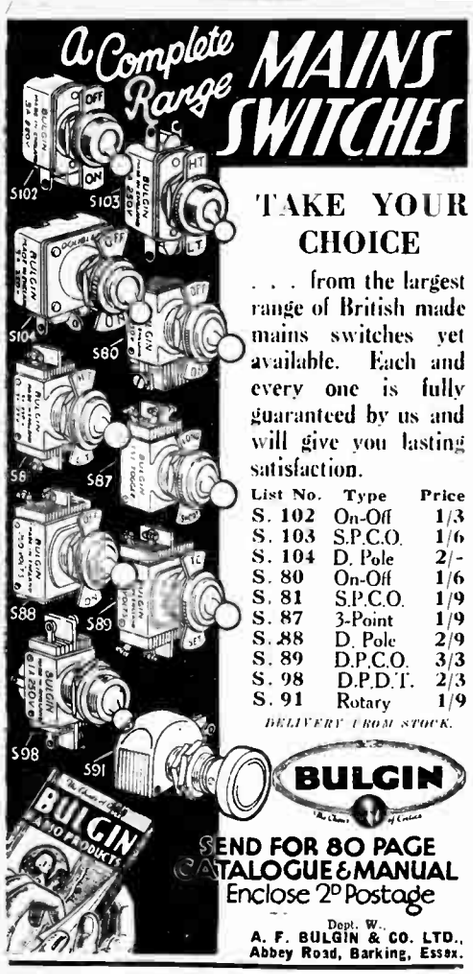

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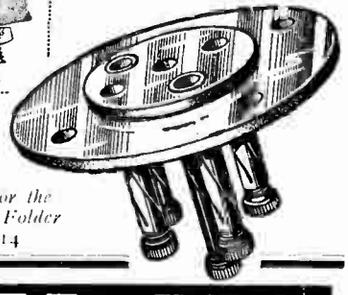

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METERS, used, guaranteed perfect; Weston 301 flush, 0-300 m.a., 20/-; ditto high voltage, bakelite cased, 0-100 m.a., 25/-; ditto projecting, 0-300 m.a., 20/-; 0-2 m.a., 25/-; 0-100 m.a., 20/-; 0-15 amps., 20/-; Weston model 375 galvo centre zero 0-30, 17/6.

FERRANTI Projecting Centre, zero 0-5 amps., 20/-; ditto, 0-500v., 200 ohms per volt, 25/-; Turner flush model 505, 0-50 m.a., 25/-; 0-300 m.a., 25/-; size 3½in.; Turner small model, 0-5 m.a., 15/-; ditto 0-20 amps., 10/-; Ferranti flush, 0-250 m.a., 20/-; 0-7.5v., 20/-; Siham flush, 0-6v., 10/-; m/c.

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R. [2409

FOURTEEN 10v. "D.P." Accumulators, 5,000 m.a., practically new; 45/-; cost 87/6. Mather, "Kemberley," Repton Rd., Orpington. [2443

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CONDENSERS, multiple blocks, all 1,500 test, 20 mfd., 4+4+2+2+2+2+2+1+1, at 11/-; 11 mfd. (4+2+2+2+1+1, at 6/9; 4 mfd. (2+2), at 3/3; 5 mfd. (2+2+1), at 4/3.

VARIABLE Condensers, complete with screen covers, trimmers, disc drive, escutcheon plate, knob, etc., 1933 Polar Star, 3-gang, listed 30/6, at 16/-; J.B. Nu-Gang, as above, 3 Gang at 14/6; 2 Gang, as above, at 10/-; cash with order; carriage paid, or c.o.d.—Chal-Electric, 5 Conduit St., London, W.1. [2422

RIVERSDALE Class B Transformers, 7/9; Riversdale Class B output chokes, 7/9; impregnated windings, freshly tested and fully guaranteed; Riversdale Class B P.M. M.C. speakers, weight 7½lb., 25/6; ordinary type, 22/6; above goods carriage paid; cash or c.o.d. Streets, 84, Riversdale Rd., Highbury, N.5. [2419

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SMOOTHING Chokes.—20 henry 30 m.a. (400 ohms), 6/-; 30 henry 60 m.a. (600 ohms), 7/-; 50 henry 60 m.a. (500 ohms), 8/6; 20 henry 120 m.a. (375 ohms), 9/3.

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VARIABLE Condensers.—Complete with screens, cover, trimmers, dise drive, escutcheon plate, knob, etc.; J.B. Nu-Gang 3 Gang 0.005, 14/6; 2 Gang, as above, 10/-.

H.F. Screen Chokes.—H.M.V. 50-60 m.a., 100,000 microhenrys. 1/-; moving coil speakers (few only), Rola's F.6 7½in. cones, following voltages: 6 volts, 8½ ohms, 2,000 ohms, 2,500 ohms, 4,700 ohms, 6,500 ohms, listed 35/- at 18/- each; F.7 9in. cones, all voltages, listed at 46/6, at 25/-; permanent magnets, F.6 P.M., listed 49/6, at 28/-; F.7 P.M., listed 60/-, at 32/- each; public address S.G. Brown A.C., 100-250 volts, 13¼in. diaphram, complete with rectifier, transformer, at 45/-.

PLEASE State whether Power or Pentode Transformer Required; cash with order; call, or c.o.d., carriage paid.—Newth's Mayfair Radio, 31, George St., Hanover Sq., London, W.1. [2423

FERRANTI, A.F.5C, 15/-; O.P.M.4C, 12/6; both perfect; O.P.M.4 (as brand new), 10/6.—Davis, 22, Dalkeith St., Walsall. [2417*a*

MOVING Coil Milli-Ammeters, 0-50, 10/6 each; 2 milliamps and 120v. 17/6 each; other ranges in stock; alterations, repairs of every description.—The Victa Electrical Co., 47, High St., Battersea, S.W.11. [0355

CONDENSER Blocks 6d. per mfd., 650-volt test, in blocks of 6 mfd. upwards, wired in 2 mfd. units; 2 years' guarantee; send by return of post on 7 days' approval; cash with order.—Butlers Radio, Ltd., 191, Forest Rd., Walthamstow, E.17. 'Phone: 3134. [0346

CLASS B Output, 4-valve, varimu, P.M. speaker, new valves and batteries, all in oak cabinet, guaranteed, £10; 3-valve S.G., pentode, speaker, and walnut cabinet, less batteries, new valves, £4; Epoch 99 A.C. M.C. speaker, 9in. cone, £2/10; valves, all makes and types, half price; nearly new Simpson's A.C. motor, £1.—Page, 173, Goldhurst Terrace, Hampstead, N.W.6. [2391

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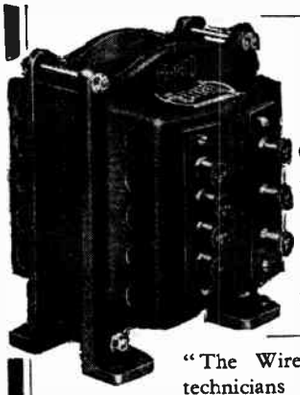

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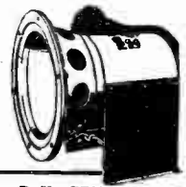

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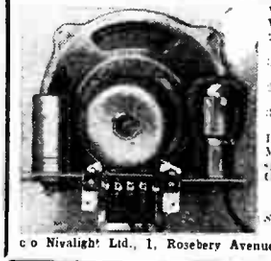

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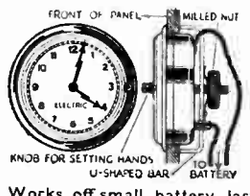

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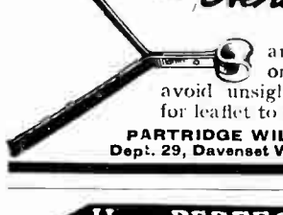

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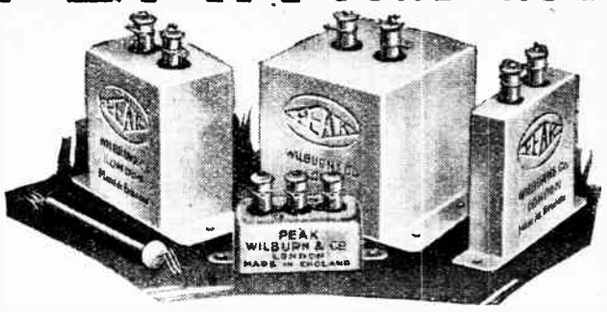

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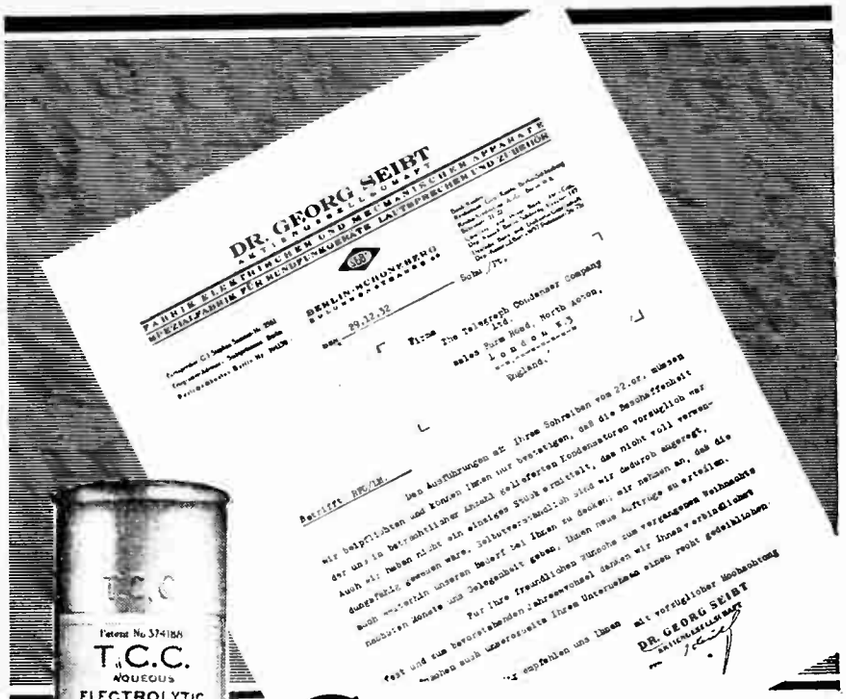

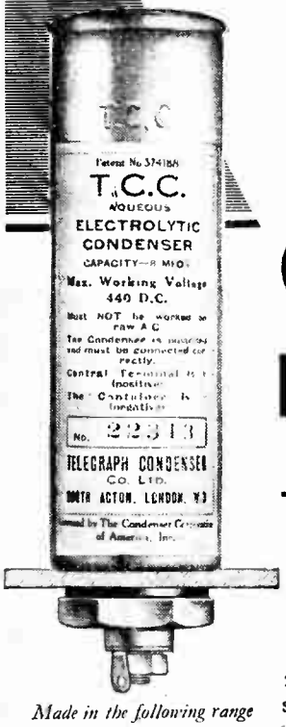

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WEDNESDAY

APRIL THE NINETEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Orchestral concert from Bournemouth. Symphony concert.
LONDON REGIONAL	"The Ringer," a play by Edgar Wallace.
MIDLAND REGIONAL	Welsh songs, choral programme.
NORTH REGIONAL	The Bouquets Concert Party, from Southport.
WEST REGIONAL	"Patchwork," a feature programme.
SCOTTISH REGIONAL	Violoncello and pianoforte recital.
BELFAST	Orchestral concert from Stranmillis.

ABROAD

BERLIN (Witzleben)	8 p.m. Max von Schilling's concert, conducted by the composer.
BRESLAU	7 p.m. "Sonnenberg," a radio play by Arnolt Bronnen, with incidental music by J. A. Voelkel (relayed by other German stations).
BRUSSELS (No. 2)	8 p.m. Orchestral concert, conducted by Dr. P. Raale.
BUDAPEST	7.45 p.m. Opera: "La Traviata," by Verdi.
EIFFEL TOWER	8.30 p.m. Concert of Russian music.
LEIPZIG	9 p.m. Bruckner concert.
MUNICH	8 p.m. Max von Schilling's concert, on the composer's 65th birthday (relayed by **Breslau**).
RADIO PARIS	8.45 p.m. "The Innkeeper's Wife," a play by Goldoni.
RIGA	7.5 p.m. Operetta: "Countess Maritza," by Kalman.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **CORK, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Popular Music on Gramophone Records. **6.0,** Variety Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.20,** News. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** German Lesson. **8.0,** Military Band Concert, conducted by Fritz Brase. **9.0,** Soprano Solos by Elsie Hayes. **9.15,** Violin Solos by R. Potterton. **9.30,** The King of Dublin—Play presented by Tom Madden and Company. **10.30,** Time Signal, News, Weather Report and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Concert. **8.30,** Exchange Quotations. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange and Market Prices. **10.5,** Concert by the Station Orchestra: March (Blankenburg); Selection from Boris Godunov (Mussorgsky); Waltz, Vision (Waldteufel); Andante from the Suite romantica (Villar); Près du berceau (Moszkowsky); Hungarian March from The Damnation of Faust (Berlioz). **11.0,** Lope M. Martinez de Ribera reads from his own Poems. **11.15,** Orchestral Concert. Soloist: Fernando Perez Prió ('Cello). **12 Midnight** (in an interval), News. After the Concert, Light Music on Gramophone Records. **1.0 a.m. (Thursday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Report, Tourist Talk, and Announcements. **8.20,** Giornale Radio and Press Review. **8.30,** Time and Announcements. **8.35,** Chamber Music Concert; Soloists: M. De Santis Bruno (Soprano) and Franco Ruggiero (Pianoforte); Comedy Overture (Aletter); Soprano Solo: M'ami tu ancora? (Delle Cese); Prelude to La Camargo (De Leva); Chromatic Fantasia for Pianoforte (Bach); Soprano Solos (Napoli): (a) Per la tomba, (b) Filastrocca; Pianoforte Solos (Rossomandi): (a) Danza dalmata, (b) Capricciosamente; Comedy Overture (Lincke); Soprano Solo: La sera (Casavola); Prelude to I rantzau (Mascagni); Soprano Solo: Primavera (Mulè); Pianoforte Solos: (a) Prelude (Chopin), (b) Humoresque (Rachmaninov); Soprano Solo: Chi vuol comprar la bella Calandrina (Jonnelli); Pianoforte Solo: St. François de Paul (Liszt). In the interval, Film Review. **10.30,** Popular Music on Gramophone Records. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**12 Noon,** Weather for Farmers. **12.2 p.m.,** Lohengrin—Opera (Wagner), in abridged form, on Gramophone Records. **12.55,** Nauen Time Signal. **1.45,** News Bulletin. **2.0,** Popular Music on Gramophone Records, relayed from **Berlin (Witzleben). 3.0,** Programme for Children. **3.30,** Weather and Exchange. **3.45,** Jochen Klepper reads from his own Works. **4.0,** Talk: The New Wartburg Open-Air Theatre at Eisenach. **4.30,** Concert from **Hamburg. 5.10,** Talk: Germany and the Northern Lands. **5.30,** Talk on the Great War—Fighting in the West in the Spring of 1915. **6.0,** A Poem. **6.5,** Trio in E Flat, Op. 3 (Prince Louis Ferdinand of Prussia). **6.40,** Wireless Technical Talk. **6.55,** Weather for Farmers and Announcements. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** See **Berlin (Witzleben). 9.10,** Der Jüngling im Feuerofen—a Radio Sequence from the Writings of Heinz Steguweit. **10.0,** Weather, News and Sports Notes. **10.45,** Weather for Shiping. **11.0,** Concert from **Heilsberg. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**6.5 p.m.,** Sonata in A (Mozart) by Luise Thielemann (Pianoforte). **6.30,** Hans Henning reads from his own Works. **6.50,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** Max von Schillings Concert. The Station Orchestra, conducted by the Composer. Soloist: Prof. Hans Bassermann (Violin): Prelude to Act Three of Der Pfeifertag; Violin Concerto in A Minor Op. 25; Das Erntefest from Der Moloch. **9.5,** Bavarian Variety Programme, by Konrad Dreher and the Moar Orchestra. **10.5,** Weather, News and Sports Notes. **10.15** (approx.), Dance Music relayed from the Café Berlin. **12 midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**7.0 p.m.,** See **Prague. 7.25,** Concert of Old Hebrew Music. **8.5,** See **Brno. 10.0,** See **Prague. 10.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—1.10 p.m.,** German Dances on Gramophone Records. **1.45,** Time, Weather, News and Tides Report. **2.5,** Extracts from The Valkyries—Opera (Wagner), on Gramophone Records. **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.35,** Talk: Protection from the Air Now and in the Past. **3.55,** Talk: The Soul of True Art. **4.15** (from **Gleiwitz**), Talk: Rural Youth Societies. **4.30,** Recital of Love Songs by Anni Bernert (Soprano), with Pianoforte and Clarinet Accompaniment. Der Hirt auf dem Felsen (Schubert); Four German Songs, Op. 103 (Spohr): (a) Sei stille mein Herz, (b) Zwiegesang, (c) Wiegenlied, (d) Das heimliche Lied. **5.0,** Review of the April Number of Der Oberschlesier. **5.20,** Talk: Upper Silesian Spring Flowers. **5.40,** Talk: Public Advice on Careers and Placing of Apprentices. **6.5,** Talk: German Nationality and the German Frontier. **6.25,** Old Folk Songs in a New Musical Setting. **7.0,** Programme for all German Stations. Sonnenberg—Radio Play (Arnolt Bronnen), with Incidental Music by E. A. Voelkel. **8.0** Recital of Duets from Der Westöstliche Diwan (Max von Schillings), by Carla Müller-Binder (Soprano) and Bruno Jagilski (Tenor), in Honour of the Composer's Sixty-fifth Birthday. **8.40,** In Praise of Gardens—Radio Sequence (Wolfram Brockmeier). **9.25,** News Bulletin. **9.35,** Concert of Humorous Suites by the Station Orchestra conducted by Franz Marszalek. **10.10,** Time, Weather, News, Sports Notes and Programme Announcements. **10.35,** Talk: Are Horse Shows an Economic Proposition? **10.50,** Dance Music from **Berlin (Witzleben). 12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**7.0 p.m.,** See **Prague. 7.25,** Military Band Concert, conducted by F. Zita. **8.5,** Concert Paraphrase for Pianoforte on Motives from Gounod's Faust, arranged and played by P. Weiss. **8.20,** A Righteous Man—Play in Three Acts and a Prologue (Prileska). **10.0,** See **Prague. 10.30** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Concert by the Small Station Orchestra, conducted by P. Leemans: Catalan Procession (de Sévérac); Overture, Le Roi l'a dit (Delibes); An den Frühling (Grieg); Potpourri, Offenbachiana (Conradi); Flute Solo: L'oiseau tapageur (Balleron); Melody (Szulc); Selection from The Bayadere (Kálmán); Serenata (Malats); Waltz (O. Straus); Pasodoble, Pontenero (**Heymann**). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert, conducted by André Felleman, relayed from the Grand Hotel, Antwerp. **5.0,** Concert by Mickey's Club Jazz Attraction. **6.0,** Talk: Serang. **6.15,** Gramophone Concert: March from Prince Igor (Borodin); Offrande (Hahn); Séraphine (Hahn); Cubana (Falla); Solveig's Song (Grieg); Hungarian Rhapsody No. 2, for Organ and Pianoforte (Liszt); Third Movement from Antar (Rimsky-Korsakov). **6.45,** Le Cambrioleur est bon Enfant—Sketch (Lanville). **7.0,** Saxophone Recital: Waltz, Marilyn (Wiedoeft); Intermezzo (Gabriel Marie); Malaguena (Albéniz); Caprice (Gurewich). **7.15,** Talk: The Walloon Author, Emile Wiket. **7.30,** Medical Review. **8.0,** Gramophone Records: Cortège and Air de Danse from L'enfant Prodigue (Debussy); Extracts from L'Heure Espagnole (Ravel). **9.0,** Concert relayed from the Grand Hotel, Antwerp. **10.0** (in the interval), Le Journal Parlé.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**12 Noon,** Concert conducted by Felleman, relayed from the Grand Hotel, Antwerp. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra conducted by Leemans: Marche miniature viennoise (Kreisler); Waltz, Gold and Silver (Lehár); Serenade, El mi amor (Margutti); Selection from Madame Butterfly (Puccini); Serenade for Violin (Bass); Intermezzo, Bird of Love Divine (Wood); Waltz, Pagan Love Song (Brown); Selection from Un bon garçon (Yvain). **5.0,** Concert by the Small Station Orchestra, conducted by Leemans: Overture in Italian Style (Schubert); Suite, Children's Corner (Debussy); Serenade, Granada (Albéniz); Songs by M. Rombaut; Scandinavian Suite (Frederiksen); Waltz (Waldteufel). **6.0,** Petite Suite (Jongen) on Gramophone Records. **6.15,** Talk on Finnish Literature. **6.30,** Sacred Music by Bach-Busoni and Nicolas Obouhow. Soloists: Marie Antoinette Aussenac and Nicolas Obouhow (Pianofortes). **7.15,** Talk: The Life and Work of C. W. Röntgen. **7.30,** Review of International Events. **8.0,** Orchestral Concert, conducted by Dr. Peter Raale, relayed from the Conservatoire: Overture, Der Freischütz (Weber); Laudelijke stemming (Jef Van Hoof); Symphonic Poem, Les Préludes (Liszt); Symphony No. 1 (Brahms). In the interval, Recitation. **10.0,** Le Journal Parlé. **10.10,** Dance Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert by the Station Orchestra: March (Schubert); Waltz, Herztöne (Jos. Strauss); Selection from Lohengrin (Wagner); Schubert Potpourri (Urbach). **6.0,** Radio Journal. **6.15,** Concert (contd.): Suite from Frau Luna; Serenade (Widor); Violin Solo: Le soliel s'est couché (Ackermans); Canzonetta (Friml); Ballet Suite from Kassya (Delibes). **7.0,** Educational Talks. **7.55,** Time Signal. **8.0,** Violin Recital by Mlle. Pastor: La Folia (Corelli-Kreisler); Caprice No. 24 (Paganini); Tambourin chinois (Kreisler); Caprice viennois (Kreisler). **8.30,** Talk. **8.45,** Pianoforte Recital. **9.15,** 'Cello Solos by G. Cocea: Adagio (Bach); Rondo (Boccherini); Four Spanish Songs (Nin). **9.45,** Radio Journal. **10.0,** Concert of Light Music relayed from a Restaurant.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW.—Also relayed on **840 metres** from **7.25 p.m. to 12 Midnight.—5.0 p.m.,** Popular Music on Gramophone Records. **6.0,** Italian Lesson. **6.30,** Violin Recital by Stefan Farago. **7.0,** Talk. **7.30,** La Traviata—Opera (Verdi), relayed from the Royal Opera House. After the Opera, Concert by the Berci Racz Cigány Band. **11.10,** Talk in German.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time and Chimes from the Town Hall. **12.5 p.m.,** String Ensemble Concert, conducted by Harald Andersen, relayed from the Bellevue Strandhotel. **2.0 to 2.30,** Interval. **2.30,** Talk for Women. **3.0,** Gramophone Concert: Göta Ljungberg: Salomé's Aria from Salomé (R. Strauss); Emanuel List: Kaspar's Song from Der Freischütz (Weber); Emilio de Gorgorza: La Sevillana (Yradier); Vasa Prihoda (Violin): Slav Dance No. 2 (Dvorak-Kreisler); Mary Hagan: My Pal (Low); Fritz Schulz: Ja der Himmel über Wien (Fall-Farkas); Comedian Harmonists: Ein, zwei, drei und vier (Abraham). **3.30,** Orchestral Concert, relayed from the Wivex Restaurant. **5.0 to 5.40,** Interval. **5.40,** Exchange and Fish Market Prices. **5.50,** Talk. **6.20,** French Lesson. **6.50,** Weather Forecast. **7.0,** News Bulletin. **7.15,** Time Signal. **7.30,** Agricultural Talk. **8.0,** Chimes from the Town Hall. **8.5,** Concert of Operetta Music by the Radio Orchestra, conducted by Emil Reesen: Overture, La Princesse de Trébizonde (Offenbach); Selection from The Geisha (Jones); Waltz from Eine Ballnacht (O. Straus); Chinese One-step from The Yellow Jacket (Lehár); Selection from Roses of Florida (Lehár); Waltz from The Little Dutch Girl (Kálmán); March from Der fliegende Rittmeister (Dostal). **8.50,** Topical Talk. **9.20,** Pianoforte Recital by Viktor Fischer: Penny Whistle (Mayerl); Black and White (Perl); Little Silhouette (Plessow). **9.35,** A Radio Play (Jo Hanns Rösler and W. A. Riedel). **9.55,** News. **10.10,** Chamber Music for Wind Instruments: Suite for Wind Instrument Quintet (Rameau-Felmuh); Divertimento in B Flat for Wind Instrument Quintet (Mozart); Quartet for Flute, Clarinet, Horn, and Bassoon (Rossini). **10.50,** Dance Music from Nimb's Restaurant. In the interval at **12 Midnight,** Time and Chimes from the Town Hall. **12.30 a.m. (Thursday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,327 kc/s, 226 metres; 10 kW.—**12 Noon,** Gramophone Records of Variety Music. **12.30 p.m.,** News Bulletin. **12.45,** Concert of Opera and Operetta Music. **5.30 to 7.0,** Programme in English by the I.B.C., C. Denvers-Walker, B. McNabb, and F. Lamping announcing. **5.30,** Concert for Portsmouth and Southsea Listeners: Pianoforte Solos and Songs: Rustle of Spring (Sinding); The First Waltz (Durand); Alice where art thou? (Asher); Songs: (a) McLeod's Galley (Kennedy Fraser), (b) Whistle and I'll come to you (Stephen); Wasps (Holbrooke); Romanian Melody (Holbrooke); Ave Maria (Mascagni); Spring has come (Coleridge Taylor); Liebestraum (Liszt); Selection from Rigoletto (Verdi); Prelude in C Sharp Minor (Rachmaninov). **6.15,** Concert for Isle of Wight Listeners: Potpourris from the Shows; Wonder Bar (Katscher); Show Boat (Kern); Live for to-day (Tate); A Batchelor Gay (Tate); Waltzes from Vienna (Joh. Strauss); White Horse Inn (Stolz-Benatzky); The Night was made for Love, from The Cat and the Fiddle (Kern); The Dubarry (Millöcker). **7.0,** News Bulletin. **7.30,** Answers to Correspondence. **8.0,** Talk. **8.15,** News Bulletin. **8.30,** Variety Concert. **9.0,** Three One-Act Comedies: (a) La psyché de Madame (Néel), (b) Tout en chansonnettes (Gosselin and Lair), (c) Petites Rosses (Deberre). **10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music by the Decolians: I'm all dressed up with a Broken Heart; A little less of the Moonlight; Let a little Pleasure interfere with Business; I'll puteha pitcha in the Paper; At your Command; Blues in my Heart; My Baby said Yes! Yes!; Dance Hall Doll; Oh, it looks like Rain; I'm getting superstitions about you; Little Girl; Guilty; You can't stop me from loving you; Time alone will tell; Look in the looking-glass. **11.0,** Club Concert for Weston-super-Mare and Cheddar Listeners: On the Quarter Deck (Alford); 'Cello Solos:

(a) Abendlied, (b) Harlequinade; Jungle Drums (Ketelbey); Songs: (a) Drink, drink, Brothers, drink (Bendix), (b) Good Friends (Heymann); The Changing of the Guard, by Flotsam and Jetsam; 'Cello Solos: (a) Salut d'amour (Elgar), (b) The Broken Melody (Van Biene); The Battle of Waterloo (Eckersberg); Songs: (a) Because (d'Hardelot), (b) The Second Minuet (Besly); Paree (Padilla). **12 Midnight,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: Medley of Irish Jigs; Selection from The Mikado (Sullivan); Song: In Sleepy Hollow (Robinson); Chorus: Gems of Erin; Songs: (a) There's another Empty Saddle (Coleville), (b) Memories of you (Blake); Selection from Frederica (Lehár). **12.30 a.m. (Thursday),** Military Band Music: Overture, William Tell (Rossini); Mons Star; Selection from The Pirates of Penzance (Sullivan); Victoria March; Bells across the Meadow (Ketelbey); For Valour. **1.0,** Accordion Duets: Festival March; Waltz, Lorentina; Medley of Swedish Airs; Overture, Trieste; Waltz, My Florence; Waltz, The Blue Danube (Joh. Strauss); Mazurka, Lido Lady; Marine March. **1.30,** Duets: Yes Indeed; Just a little Tear; Where Rainbows rest; Orchestra: Great Day; I've always wanted to call you Sweetheart; When I catch you alone; When Baby cries for the Moon. **2.0,** Dance Music by the Ibcolians: Lovable; Where's Bill Bailey?; When we're alone; Put that Sun back in the Sky; Gettin' Sentimental; Can't we talk it over?; Sailing on the Robert E. Lee; Is I in Love? I is; I got Rhythm; Wherever you are; Moou; You're my everything; Let's put out the Lights and go to sleep; Moonlight, the Danube, and You. **2.57,** I.B.C. Good-night Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—3.15 p.m.,** Programme for Children. **4.25,** Economic Notes. **4.55,** Concert relayed from **Munich. 6.0,** Talk: Montroyal—Louis XIV's Fortress on the Moselle. **6.25,** Radio Report from the Rhenish Fire Brigade Training School in Coblenz. **6.55,** Time, Announcements, Weather, and Economic Notes. **7.0,** Transmission for all German Stations relayed from **Breslau. 8.0,** The Nationalist's Revolution in Song. **8.30,** See **Stuttgart. 10.0,** The German Almanack. **10.20,** Time, News, Weather and Sports Notes. **10.45,** Serenade relayed from **Munich. 12 Midnight,** Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.—4.30 p.m.** (from **Hanover**), Orchestral Concert, conducted by Otto Ebel von Sosen: Overture, Die Welt auf dem Monde (Haydn); Larghetto from the Coronation Concerto (Mozart); Waltz and German Dances, Aus guter alter Zeit (Schubert); Torch Dance (Feator); Ueber allen Zaubern Liebe (Larsen); Auf dem Schlosshof, from Im Heidelberger Schloss (Pirany); Mondnacht am Rheinsberger See (Blon); Wenn die Soldaten durch die Stadt marschieren (Blankenburg); Gallop, Kehraus (Kienzl). **5.30,** A Discussion on the 1933 Mecklenburg Meeting. **5.55,** Bamberger Reiter—Radio Play (Lothar Schreyer). **6.40,** Programme for Country Women. **6.45,** Exchange and Market Prices. **6.50,** Weather Forecast. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** Military Band Concert, relayed from the Uhlenhorst Fahrhaus. **9.30,** Programme by Young Hitlerites on the Eve of Hitlers Birthday; Songs and Readings from the Works of Dietrich Eckhardt. **10.15,** Time, Weather, Announcements, Sports Results, and Police Notes. **10.35,** Topical Talk. **10.45,** Concert relayed from the Reichshof.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.—1.5 p.m.,** Gramophone Concert of Popular Music. In the interval at **1.20,** News. **2.30,** Programme arranged by the Post Office with Gramophone Records. **3.0,** Agricultural Prices and Exchange Rates. **3.30,** Programme for Children. **4.0,** Talk for Parents: The Modern School. **4.30,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, La Dame blanche (Boieldieu); Waltz (Gillet); Waltz-Serenade, An dich (Czibulka); Selection from The Pearl Fishers (Bizet); Suite Goliardica (Amadei); Selection from Little Ida's Flowers (Kienau); Waltz, Loreley-Rheinklänge (Joh. Strauss). **5.45,** Review of Periodicals. **6.15,** Agricultural Prices. **6.25,** Talk: Sports and Women. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** News. **8.5,** Concert of Viennese Music; Albert Meithner (Violin), Prof. Leopold Brecharz (Viola), and Otto Schindler (Guitar); Suite for Violin, Viola and Guitar (Hasenöhrl); Partita for Viola and Guitar (Wilhelmer); Three Dances for Violin, Viola and Guitar (Salmhofer); Tango for Violin, Viola, and Guitar (Uhl). **8.55,** Robinson must not die—Play in Three Acts (Friedrich Forster). **10.15,** Weather, News, and Sports Notes. **10.30** (approx.), Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Die Felsenmühle (Reissiger); Suite, Eine Sommerfahrt (Zöllner); Overture, Light Cavalry (Suppé); Waltz, Träume auf dem Ozean (Gungl); Selection from Czar and Carpenter (Lortzing); Tanzrausch (Schmalstich); March, Regimentskinder (Fucik). **12 Midnight,** Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—**11.10 a.m.** till Close Down. Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.).—**11.10 a.m.,** Organ and Song Recital by Alex de Jong and Hovyd Krauss-Adema. **11.40,** Talk on Cookery. **12.10,** Organ and Song Recital (contd.); Songs (de Jong): (a) Prayer from the Koran, (b) Stille Schmerz. (c) Mutter unser; Sarabande (de Jong); Songs (Wolf): (a) Gebet, (b) Auf ein altes Bild; Maria Wiegenlied (Reger); Vater unser im Himmelreich (Reger); Monologue, Op. 63, No. 5 (Reger). **12.40 p.m.,** Time Signal. **12.41,** Concert by the Wireless Orchestra, conducted by Nico Treep. **2.55,** Interval. **3.10,** Orchestral Concert (contd.); Selection from The Merry Widow (Lehár); Russian Song (Smith); Red Roses (Bosc); Ah dites (Christiné); Durchs Ziel (Translateur). **3.40,** Pianoforte Recital by Egbert Veen: Sonata in C (Beethoven); April from The Seasons (Tchaikovsky); Rustic of Spring (Sinding). **4.10,** A Radio Play for Children. **5.40,** Concert by a Children's Choir, conducted by Jacob Hamel. **6.10,** Talk arranged by the Liberal Protestant Radio Society (V.P.R.O.). **6.40,** Military Band Concert, conducted by Walther Boer. In the Interval, Light Music on Gramophone Records. **8.10,** Talk. **8.40,** Time and News. **8.45,** Concert by the Wireless Orchestra and the Three Nehring Brothers; Conductor, Nico Treep: The Gladiators' Farewell (Blankenburg); Waltz, The Blue Danube (Joh. Strauss); By the Blue Hawaiian Waters (Ketelbey); Kukokama-Estapo (Lincke); Nola (Arndt); The Squirrel Dance (Elliott Smith); Schatten Walzer (Joh. Strauss); Greenwich Witch (Confrey); Los Banderillos (Volpatti); Musical Comedy Revue (Fetras); A Wedding in India (Percy); March, Stars and Stripes (Sousa). **9.40,** Talk by Felix Timmermans, the Flemish Author. **10.0,** Concert by the Kovacs Lajos Band, with Songs by Bob Scholte and the A.V.R.O. Girls. **10.55,** Light Music on Gramophone Records. **11.0,** Concert (contd.). **11.40,** News Bulletin. **11.50,** Popular Music on Gramophone Records. **12.40 a.m. (Thursday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW. Programme of the Christian Radio Society (N.C.R.V.).—**11.40 a.m.,** Organ Recital. **12.40 p.m.,** Police Notes. **12.55,** Trio Concert; Soloist: C. v. Ravenzwaay-Möllenkamp (Songs). **2.40,** Agricultural Talk. **3.25,** Programme to be announced. **3.40,** Reading. **4.10,** Concert by the Delft Trio: Trio in C for Violin, 'Cello, and Pianoforte (Mozart); Sonata in C Minor, Op. 30, No. 2 (Beethoven); Overture, Coriolanus (Beethoven) on Gramophone Records; Adagio from the 'Cello Concerto, Op. 104 (Dvorak); Trio in G Minor, Op. 15 (Smetana). **5.40,** Religious Programme for Children. **6.41,** Talk: Frisian Poetry. **7.10,** Topical Review. **7.40,** Programme arranged by the Department of Buildings and Roads. **8.10,** Police Notes. **8.25,** Press Review. **8.40,** Choral Concert; Soloists: Jeanne Flinterman van Eck (Soprano) and Willem Seglver (Baritone). **9.25,** Religious Address. **9.55,** Concert of Sacred Music. **10.10,** Religious Address (contd.). **10.40,** Concert (contd.). In an interval at **11.10,** News. **11.55,** Gramophone Records of Sacred Music. **12.10 a.m. (Thursday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**8.0 p.m.,** Announcements, News and Exchange. **8.10,** Music Review. **8.20,** English Lesson. **8.40,** Concert. **9.0,** Weather, Exchange and News. **9.15,** Schubert Concert, conducted by M. Yffer of Vienna. **12 Midnight to 1.0 a.m. (Thursday),** Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight,** Military Band Concert: Distant Greeting (Loring); National Emblem March (Bagley); The Thunderer (Sousa); La Rêve passe (Krier); Old Comrades (Teike); March, King Cotton (Sousa); Medley of British Songs; On the Quarter Deck (Alford). **12.30 a.m.,** Concert: Orchestra: Stardust (Carmichael); Vienna, City of my Dreams (Sieczinski); Song of Songs (Mayo); Selection from Cavalcade (Coward); Take off your Coat (Longstaffe); When the Sergeant Major's on Parade (Longstaffe); Orchestra: Trees (Rasbach). **12.57,** I.B.C. Goodnight Melody. **1.0,** Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0,** Military Band Concert, conducted by Kühn. In an interval at 2.0 (approx.), Announcements. **2.30,** Sponsored Concert with Gramophone Records. **3.30,** Economic Notes and Time Signal. **3.50,** Programme for Young People: German Stories and Chamber Music. **4.30,** Concert conducted by Wolf. Soloist: Georg Fabian (Songs to the Lute): Marsch der schönen Frauen (Clemus); Festival Overture (Hartung); Ballet Music from Undine (Lortzing); Songs to the Lute: (a) Landsknechtlied (Fabian), (b) Der Grenadier, (c) Der fremde Spielmann (Fabian), (d) Das Schreiberlein von Osnabruck (Dölden); Waltz, Deutsche Grüsse (Lincke); Sonnenmeer from Jubelnder Sommer (Leuschner); Im wogenden Ahrenfeld (Dransmann); Potpourri, Musikalische Trümpfe (Noack). **5.50,** Talk on the Meeting of the German Choral Society in Dortmund. **6.10,** Talk: Unemployment and Technical Progress. **6.35,** Reading of Poems (H. Rehberg). **6.45,** Weather, Time, Economic Notes, and Sports Notes. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** Announcements. **8.5,** Soap Bubbles—Variety Programme of Recitations, Songs, and Stories (arranged by Alfred E. Sistig). **10.5,** Announcements and Sports Notes. **10.30,** Serenade on Gramophone Records. **10.45,** See **Munich. 12 Midnight** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—12 Noon,** Concert by the Emdé Orchestra. In an interval at **1.0 p.m.,** News, Weather and Time. Exchange Quotations after the Concert. **2.0,** Advice for the Unemployed. **3.35,** Exchange and Market Prices. **4.0,** Programme for Children. **4.45,** Book Review. **5.10,** Illustrated Talk: From the Old Folk Dance to Modern German Dances. **5.50,** Weather, Time and Exchange. **6.0,** Talk: The Day of Freedom and Bread for all is at Hand. **6.20,** Talk: Spain's New Constitution. **6.45,** The Leipzig Station informs its Listeners. . . . **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** Recital of Old and New Songs to the Lute, by Oscar Besemfelder. **8.45,** Topical Talk. **9.0,** Bruckner Concert by the Leipzig Symphony Orchestra, conducted by Franz Moissl: Two Festival Fanfares: (a) On Themes from the Fifth Symphony, (b) On Bruckner's Hundred and Twelfth Psalm; Intermezzo from a String Quintet; Symphony in F Minor. **10.5,** News Bulletin. **10.20** (approx.), Concert by the Dresden Soloists' Ensemble: German Dances (Schubert); Romance in G for Violin and Pianoforte, Op. 40 (Beethoven); Minuet and Allegro molto from the String Quartet in C (Mozart); Romance and Finale from the Cello Sonata in A Minor, Op. 36 (Grieg); Piece from the Little Suite, Op. 14, for Two Violins and Pianoforte (Ambrosius); Pianoforte Pieces (Philipp); Waltz, Abendsterne (Lanner); Walzer-Moment-nach Johann Strauss (Schütt); Mélancolie (Bullerian). **12 Midnight** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**5.0 to 5.30 p.m.,** Programme in English by the I.B.C. **5.0,** International Broadcasting Club Concert: Roses from the South; For you; Rio Rita; Sweet Amanda; Albumblatt; Romance; Someone to care for; This is no Dream; Wine, Woman and Song. **5.30,** Readings. **6.0,** Light Music on Gramophone Records. **7.0,** Russian Lesson. **7.30,** Literary Talk. **8.0,** Song Recital. **9.0,** Concert, relayed from the Zvezda Café. **10.15,** Time and News.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 to 1.0 a.m. (Thursday),** Spanish American Programme. Items to be announced.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Radio Journal, and Request Gramophone Records. **9.25,** News Bulletin and Political Review. **9.30 to 10.30,** Interval. **10.30,** Chimes, Time Signal, Political Review, and Dramatic Programme. **12.45 a.m. (Thursday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,367 kc/s, 263.8 metres; 11 kW.—**5.10 p.m.,** Marionette Play. **6.5,** Market Reports. **6.15,** Talk for Workers. **6.25,** Concert of Compositions by M. Polasek. **7.0,** See **Prague. 8.10,** Talk. **7.25,** Concert by the Station Orchestra, conducted by J. Plichta: Overture, The Magic Flute (Mozart); Violin Concerto in A, No. 5 (Mozart); Suite, Mozartiana (Tchaikovsky); Overture, Il re pastore (Mozart). **8.20,** See **Brno. 10.0,** See **Prague. 10.15** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**6.30 p.m.,** Dance Music or Concert relayed from the Radio Theatre or the Conservatoire. **8.0,** A Literary Programme in Czech. **9.0,** A Literary Programme in English. **9.30,** Programme Announcements. **9.55,** Announcements. **10.5,** Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.—1.15 p.m.,** Concert of Opera Music on Gramophone Records. **2.0,** Time, Weather, Programme Announcements, News, and Exchange. **2.20,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Reading for the Young (Hanus Konrad Schauer). **3.30,** Anecdotes about Musicians. **3.55,** Weather and Agricultural Notes. **4.5,** Programme for Children. **4.55,** Orchestral Concert, conducted by Erich Kloss: Overture, Albin (Flotow); Zigeunerlieder (Brahms); Serenade (Mozart); Introduction and Chorus from Rienzi (Wagner); Russischer Dreiklang (Weninger); Styrian Humoresque (Spary). **5.45,** Talk: Justus von Liebig, a Famous Chemist. **6.5,** Talk: Nietzsche's Views on Germany's Destiny. **6.25,** Time, Weather, and Agricultural Notes. **6.35** (from **Nürnberg**), Zither Recital. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** Max von Schillings Concert by the Station Orchestra, conducted by Hans Winter; Soloist, Milly Berber (Violin); Symphonic Prologue to Oedipus Rex; Concerto for Violin and Orchestra; Prelude to the Third Act of Der Pfeifertag. **9.10,** Talk on Astronomy. **9.30,** Concert by the Station Orchestra, conducted by Karl List: Overture, Russlan and Ludmilla (Glinka); Selection from The Bird Fancier (Zeller); Waltz from Der arme Jonathan (Millöcker); Mazurka, Im Karneval (Heuberger); March from Fatinitza (Suppé). **10.20,** Time, Weather, and News. **10.45,** Serenade, conducted by Erich Kloss. **12 Midnight** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredrikstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres. 5.15 p.m.,** Light Music on Gramophone Records. **6.15,** Press Review. **6.30,** Sports Talk for Boys, relayed from **Trondheim, 605 kc/s, 495.8 metres. 7.0,** Announcements, Weather and News. **7.30,** Talk on Child Psychology. **8.0,** Time Signal. **8.1,** Concert by the Station Orchestra, conducted by Hugo Kramm. Soloist: Otto Weinreich (Pianoforte): Overture, Cosi fan tutte (Mozart); Concerto for Pianoforte and Orchestra (Bach); Suite for Strings (Gunnar de Frumerie); Concerto for Pianoforte and Orchestra (Liszt); Symphonic Fragment, Hamlet (Arnoldus Nielsen); Suite, Op. 16 (Saint-Saëns). **9.30,** Agricultural Report. **9.40,** Weather and News. **10.15,** Readings. **10.45,** Recital of the Songs of Arne Svendsen The Composer at the Pianoforte. **11.0** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**11.0 a.m. to 12.25 p.m.,** See **Turin. 8.0,** Dopolavoro Announcements. Tourist Talk, Agricultural Notes, and Giornale Radio. **8.20,** Light Music on Gramophone Records. **8.30** (in an interval), Time Signal and Announcements. **8.45,** Variety Concert; Soloists: G. Adelfio (Soprano) and A. Saporetti (Violin): Overture, To the Story of the Lovely Melusina (Mendelssohn); Soprano Solos: (a) Villanella (Dall 'Aequa), (b) Fiorellin d'amore (Brogi); Suite, Aus Holbergs Zeit (Grieg); Violin Solos: (a) La gitana (Kreisler), (b) Moto perpetuo (Paganini); Talk; Soprano Solos: (a) Bacio vivo (Bettinelli), (b) Strana (Tirindelli); Adagio (Perosi); Violin Solos: (a) Aria on the Fourth String (Bach), (b) Andalusian Dance (Sarasate); Overture, La battaglia di Legnano (Verdi). **10.0,** Song Recital. **10.55,** News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals on **2,650 metres at 10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**6.45 p.m.,** Music Review. **7.0,** Le Journal Parlé. **7.15,** Programme for Children. **8.20,** Weather Re-

port. 8.30, Russian Concert by the Symphony Orchestra, conducted by Edouard Flament. Soloist: Mme. Frida Manassevitch (Songs). Extracts from Prince Igor (Borodin); Overture, A Life for the Tsar (Glinka); The Fair at Sorotschinsk (Mussorgsky); Arias from The Snow Maiden and The Tale of Tsar Saltana (Rimsky-Korsakov); Russian Rhapsody (Gretchaninov); Symphonic Sketch, Une Fête slave (Glazunov); Valse lente (Tcherepnin). In the interval at 9.15, Topical Talk and News. 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Gramophone Records: Selection from The Desert Song (Romberg); Selection from Véronique (Messager). 8.0, Press Review and Weather. 12 Noon, Talk: Great Writers and their Styles. 12.15 p.m., Concert by the Radio Paris Orchestra: Selection from Gipsy Love (Lehár). 12.30, Organ Recital by G. T. Desserre, relayed from the Gaumont Palace: Overture, Zampa (Hérold); Waltz, Fiorella (Pikaert); Selection from Ciboulette (Hahn); Mona Lisa (Sullivan). 1.0, Exchange, News and Weather. 1.5, Orchestral Concert (contd.): Selection from The Merry Peasant (Fall); Le Chevalier d'Eon (Berger); Selection from Der Orlov (Granichstaedten); Selection from Mam'zelle Nitouche (Hervé); Selection from Orpheus in the Underworld (Offenbach). In the interval at 1.30, Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.30, Market Prices, Weather, Agricultural Report and Exchange. 6.40, Gramophone Records: Overture and Passepied from La Basoche (Messager); Legenda for Guitar (Albéniz); Fantome (Daniderff); La Chaine (Daniderff); Danza (Granados). 7.0, Medical Talk. 7.20, Concert of Aubades and Serenades; Aubade (Lalo); Aubade (Fievet); Aubade à Colombine (Fourdrain); Aubade sentimentale (Canne); Aubade de chérubin (Massenet); Serénade aux étoiles (Amadée); Serenata (Albéniz); Sérénade carnavalesque (Erlanger); Serenade (Borodin). 7.50, Commercial Prices and News. 8.20, Literary Readings. 8.30, Commercial Prices and News. 8.40, Fashion Review by Mlle. José. 8.45, La Locandiera—Comedy in Three Acts (Goldoni) adapted by Mme. Darsenne. In the interval at 9.15, Press Review and News. 10.0, Gramophone Concert of Old Italian Music: Madrigal (Monteverdi); Toccata on the Cuckoo's Song (Pasquini); Invocation from Médée (Cavalli); Sonata for Flute and Strings (Scarlatti).

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—10.0 p.m., Work-a-day Thoughts. 10.5, Business News. 10.15, Ballroom Promenade, from **New York.** 10.30, Weather Report. 10.32, Market Reports. 10.45, Programme to be announced. 10.57, David Lawrence Dispatch. 11.0, Jean and Gene. 11.15, Dick Daring, from **New York.** 11.30, The Singing Lady. 11.45, Little Orphan Annie, from **New York.** 12.0 **Midnight,** Booth Tarkington's Maude and Cousin Bill, from **New York.** 12.15 a.m. **(Thursday),** Time Signal. 12.16, Weather Report. 12.17, Teaberry Sport Review. 12.22, Press News Reeder. 12.29, Temperature Report. 12.30, KDKA Orchestra. 12.45 to 1.30, **New York** Relay. 12.45, To-day's News, by Lowell Thomas. 1.0, Amos 'n' Andy. 1.15, Southern Singers. 1.30, KDKAlender of Stars. 2.0 to 4.0, **New York** Relay. 2.0, Eno Crime Clues. 2.30, Time Signal and String Symphony. 2.45, Phil Cook and the Ingram Shavers. 3.0, Adventures of Sherlock Holmes. 3.30, Woodbury Programme, with Morton Downey and Donald Novis. 4.0, Programme to be announced. 4.15, Around the Cracker Barrel. 4.30, Music Magic, from **New York.** 5.0, Time Signal. 5.1, Teaberry Sport Review. 5.11, Temperature Report. 5.12, Weather Report. 5.15, Press Last Minute News Flashes. 5.20, Dave Roberts—Left-handed Banjoist. 5.30, Smith Ballew and his Orchestra. 5.58, KDKA Artist Bulletin. 6.0, Hotel Park Central Orchestra, from **New York.** 6.30, Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—4.10 p.m., Concert by the Station Orchestra, conducted by Otakar Parik; Soloist, I. Vectomov ('Cello); Students' Festival Overture, Op. 7 (Ryp); Variations on a Rococo Theme for 'Cello and Orchestra, Op. 33 (Tchaikovsky); Gavotte en roudeau and Minuet from the Dance Suite (Modr); Waltz from The Black Water-Lily (Marsik). 5.0, Talk: A Spring Tour through Prague Castle. 5.10, See **Moravská-Ostrava.** 6.5, Agricultural Report. 6.15, Talk for Workers. 6.25, News in German. 6.30, German Transmission: Programme for Workers. 7.0, Chimes and News. 7.10, Talk on Music. 7.25, See **Brno.** 8.5, Talk. 8.20, See **Brno.** In the interval at 9.0, Time Signal. 10.0, Time and News. 10.15, News in French for Foreign Listeners. 10.30 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.**—6.0 p.m. (from **Lausanne**), Programme for Children. 7.0 (from **Geneva**), Weather, News and Announcements. 7.30 (from **Lausanne**), Agricultural Talk. 8.0, Concert by the Radio-Suisse Romande Orchestra. 9.0 (from **Lausanne**), Cabaret Concert. 10.0, News and Weather. 10.10 (from **Lausanne**), Dance Music relayed from the Bel-Air Metropole. 11.0 (approx.), Close Down.

REYKJAVIK

250 kc/s, 1,200 metres; 21 kW.—9.5 p.m., Light Music. 9.30, Weather Report. 9.40, Light Music and Announcements. 10.0, Chimes and News. 10.30, Reading. 11.0, Violin Solos by Thorarinn Gudmundsson and Quintet (Schumann), on Gramophone Records.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.**—7.45 a.m., Gymnastics. 8.15 to 8.30, Giornale Radio and Announcements. 11.0 to 12.15 p.m., See **Turin.** 12.30, Weather and Light Music on Gramophone Records. 1.0 to 2.15, Orchestral Concert: Andalusian March (Malvezzi); Dolce enore (Cortopassi); Bozzetto campestre (Rinaldi); Song (Lane); Rhapsody (Carabella); Visione veneziana (Brogi); Selection from The Three Musketeers (Friml); Lucia Luci (de Curtis); Melody (Clare); Melody (Luadi); Suzur (Petralia). In the interval from 1.30 to 1.45, Giornale Radio and Exchange. 2.0, Time and Announcements. 4.45, Children's Radio Review. 5.10, Announcements. 5.15, Exchange, Report of the Royal Geographical Society, and Giornale Radio. 5.30 to 6.15, Orchestral Concert: Farewell March (Preil); Quanto mi fai soffrire (Barbirolli); Scherzo (Pick-Mangiagalli); Paronad ancora (Adducci); Selection from Mephistopheles (Boito); Minuet (Longobardi); Melody (Escobar); Arlecchino (Sassoli); In sogno (Catalani); Mary and Bobby (Grandino). 7.0 **(Naples),** Shipping and Sports Notes. 7.10, Agricultural Report and Dopolavoro Notes. 7.20, Giornale Radio 8.0, Time, Announcements, and Light Music on Gramophone Records. 8.15, Medical Talk. 8.30, Sports Notes and Tourist Report. 8.45, Relay from a Theatre or Concert in the Studio. In the intervals, Talk, Announcements, and News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY); 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF, on 31.48 metres;** and by **W2XAD, on 19.56 metres.**—8.30 p.m., Westminster Choir, from **New York.** 9.0, Two Seats in the Balcony, from **New York.** 9.30, Health Talk, by Dr. Royal S. Copeland. 1.0 a.m. **(Thursday),** Mischa Weisbord (Violinist), from **New York.** 1.15, Stock Reports. 1.30, Utica Club Programme. 1.45 to 3.30, **New York** Relay. 1.45, The Goldbergs. 2.0, Royal Vagabonds. 2.30, The Shadow, Mystery Drama. 3.0, General Tire Programme. 3.30, Supper Club Orchestra. 4.0, **W2XAF** Sign Off and Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—6.30 p.m. (from **Zürich**), Talk: The Racial Question in America. 7.0, Time, Weather and Market Prices. 7.15 (from **Zürich**), Elementary English Lesson. 8.0 (from **Zürich**), Fourth Experimental Transmission from the New Zürich Studio. Programme of Folk Music and Literature. 9.30, Weather and News. 9.40 (from **Zürich**), Balalaika Concert, with Gramophone Interludes. 10.15 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres; and Sundsvall, 554 kc/s, 542 metres.**—5.5 p.m., Accordion Music, relayed from **Norrköping, 1,292 kc/s (232.2 metres).** 5.30, Reading. 6.0, Popular Music on Gramophone Records. 7.0, Talk. 7.15, Weather and News. 7.30, Talk: The History of the Reformation in Sweden, relayed from **Malmö, 1,301 kc/s, (231 metres).** 8.0, Symphony Concert, conducted by Václav Talich: Concerto in B Minor, Op. 3, No. 10, for Four Violins (Vivaldi); Sinfonia da chiesa, No. 2 (Rosenberg). 8.50, Talk: The Infancy of Civilisation. 9.20, Recital of Wilhelm Stenhammar's Songs by C. G. Stenhammar. 9.45, Weather and News. 10.0, Dance Music by the Enders Orchestra, relayed from the Berns Hall. 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.30 a.m., Gramophone Concert: Overture, Coriolanus (Beethoven); Quartet in F (Beethoven); Quartet, Op. 121 (Fauré). 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Light Music on Gramophone Records. 2.0 to 4.45, Interval. 4.45, Talk in German: Electricity and Bird Breeding. 5.0, Orchestral Concert, conducted by M. Roskam. Soloist, M. Grégoire (Violin). Chinese March (Lincke); Waltz, Die Schönbrunner (Lanner); Overture, The Princess in the Golden Slippers (Rust); Serenade, To Columbine (Frederiksen); Selection from Der Frauenfresser (Eysler); Élégie for Violin and Orchestra (Filipucci); Spanish Ballet Suite (Mirandola). 6.0, Concert of Variety Music, relayed from **Lille (1.130 kc/s, 265.4 metres).** 7.0, Talk on Sociology: Holiday Camps. 7.15, Popular Music on Gramophone Records. 7.30, Time and News. 7.45, Programme for Young People, relayed from **Paris (Eiffel Tower).** 8.15, Press Review in German, and Lottery Results. 8.30, Concert by the Torino Mandoline and Guitar Society, conducted by M. Meyer: Spanish March, Marinita (Coletta); Prelude in F (Macciocchi); Selection from Mignon (Thomas); Serenade (Toselli); Waltz Intermezzo, Was Blumen träumen (Translateur); Romanian Fantasia, Nadedja (Macciocchi); March, Les jolies midinettes (Baumann). 10.0, Press Review in French. 10.5, Il Trovatore—Opera in Four Acts (Verdi), on Gramophone Records. 12 **Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—1.30 p.m., Concert from **Langenberg.** 2.0, Programme arranged by the Post Office, with Gramophone Records. 2.15 to 2.30 (from **Mannheim**), Programme arranged by the Post Office, with Gramophone Records. 3.0 (from **Karlsruhe**), Programme for Children. 4.0, New Children's Songs by Hubert Giesen—Recital by Else Doubberger (Soprano). The Composer at the Pianoforte. 4.55, See **Munich.** 5.45, Time, Weather and Agricultural Notes. 6.0, Talk: How the German Army trains its Soldiers for Civilian Life. 6.25, Talk: Will the Protection of Tenants be extended after April 1st? 6.50, Time and News. 7.0, Transmission for all German Stations, relayed from **Breslau.** 8.0 (from **Karlsruhe**), Zither Quartet Concert: A Brief vom Dirndl (Hauser); Unter duftenden Blumen (Plobberger); Waltz, Herbstblumen (Schultze); Ein Morgen am Traunsee (Karl König). 8.30 (from **Freiburg**), Germany's Past—a Variety Programme. 10.0, Time, News, Weather and Programme Announcements. 10.20, Old Dance Music on Gramophone Records. 10.45, See **Munich.** 12 **Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Operetta Music: Selection from: (a) Rip van Winkle (Planquette), (b) The Land of Smiles (Lehár), (c) Mirette (Messager). 6.30, Orchestral Music. 6.50, Two Pieces (Haydn): (a) Allegro, (b) Minuet. In the interval, Talk. 7.15, Racing Results, Market Prices and News. 7.25, Local News Bulletin. 7.30, Opera Music: Selection from: (a) Mirella (Gounod), (b) Le Jongleur de Notre-Dame (Massenet), (c) Le Roi d'Ys (Lalo). 7.45, 'Cello Solos. 8.0, Popular Concert. 8.30, Music by a Viennese Orchestra. 8.45, Accordion Music. 9.0, Concert by La Palladienne Orchestra. Conductor: M. Canteuys. In the interval: Light Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco: Selection from Faust (Gounod); Melody from La Bohème (Puccini); Waltz (Millöcker); Melody (Daniderff); Java (Maya). 11.0, Opera Music: Prelude to Act I of Lohengrin (Wagner); Overture, Philemon et Baucis (Gounod); Dance, L'enfant prodigue (Debussy); March from The Valkyries (Wagner). 11.15, Light Music. 11.30 to 12 **Midnight,** Programme in English by the I.B.C. W. Brown-Constable announcing. 11.30, Light Music: Mona Lisa; Joey the Clown; Ali Baba's Camel; The Sacred Home; Melancholy; Lover of my Dreams; Belle of Barcelona. 11.57, I.B.C. Good-night Melody. 12.0 **Midnight,** News, Weather Forecast and Announcements. 12.5 a.m. **(Thursday),** Light Orchestral Music. 12.15, Military Music. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—11.0 a.m. to 5.0 p.m., See **Turin.** 5.0, Violin and Pianoforte Recital: Chamber Music by Cesare and Morosina Barison: Pieces for Violin and Pianoforte: (a) La follia (Corelli), (b) Sicilliana (Pergolesi), (c) Gavotte (Lulli), (d) Prelude and Allegro (Pugnani); Pianoforte Solos: (a) Spring Song (Mendelssohn), (b) Moment musical (Schubert); Pieces for Violin and Pianoforte: (a) Aria (Goldmark), (b) Polka (Weinberger); Pieces for Violin and Pianoforte: (a) Minuet (Paderevsky), (b) Caprice viennois (Kreisler), (c) Song of the Nightingale (Burison). 6.35 till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—11.0 a.m., Concert for Schools; Address by Enrico Marchesi, President of the E.I.A.R.: Overture, La Vestale (Spontini); Talk: The Origin of the Romans; Romulus and Remus—a Radio Scene; Talk: From the Foundation of Rome to the Political Struggles in the Time of Coriolanus, with March from Norma (Bellini); The Fable of Menenius Agrippa—Radio Scene; Talk: Harmony throughout Italy; Hymns for Children's Choir and Orchestra. 12.15 p.m., Gramophone Records of Light Music. 12.45, Giornale Radio. 1.0, Time and Announcements. 1.2 to 2.15, See **Rome.** In the interval from 1.30 to 1.45, Exchange and Gramophone Records. 2.15 to 2.25 **(Milan),** Exchange. 4.30, Giornale Radio. 4.40, Programme for Children. 5.0 to 6.0, Song Recital. 6.35, Giornale Radio, Agricultural and Dopolavoro Notes. 7.0, Time, Tourist Report, and Light Music on Gramophone Records. In the interval at 7.20, Giornale Radio. 8.0 Announcements, Giornale Radio and Weather. 8.15, Medical Talk. 8.30, A Comedy in Three Acts, followed by Light Orchestral Music. 11.0, Giornale Radio. 11.5 to 11.30 **(Florence),** Dance Music Relay.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and **5,969 kc/s, 50.26 metres (Evening);** 10 kW.—11.0 to 11.15 a.m., Religious Information in Spanish. 8.0 to 8.15 p.m., Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—5.5 p.m., Concert by the Gustav Macho Orchestra. Soloists: Hans Quiquerez ('Cello) and Gustav Macho (Violin). Overture, The Corkatoo (Offenbach); Waltz from Die romantische Frau (Weinberger); 'Cello Solo: Allegro Appassionato (Saint-Saëns); Fantasia, Suppé-Illusionen (Michaelov); Intermezzo, Die alte Spieluhr erzählt (Macho); Violin Solos: (a) Gipsy Serenade (Valdez), (b) Scherzo (Eberhardt); Potpourri, Eine Fahrt ins Blaue (Dostal); March Intermezzo, Der Zirkus kommt (Rust). 6.5, Health Talk. 6.30, Talk: The Pros and Cons of giving Women Employment. 6.55, Talk by Dr. H. A. Bernatzik: My Experiences among the Solomon Islanders. 7.20, Time, Weather and Programme Announcements. 7.30, Reading (Kobelka). 8.0, Military Band Concert: Fanfare Hymn (Thann); Coronation March from The Prophet (Meyerbeer); Waltz, Alt-Wien (Lanner-Kremser); Third Regimental Fanfare (Gaigg); Old Viennese Folk Music (Komzák); Parade March with Fanfares (Müller); Jubilee Fanfare (Mader); Andreas Hofer March (Komzák). 9.0, Zur Strecke gebracht—a Parody of a Detective Novel, arranged as a Radio Play (Hans Reimann). 10.15, News, Weather and Announcements. 10.30, Announcements in connection with the Austrian Musical Festival. 10.40, Dance Music by the Karl Machek Jazz Band, relayed from the Café Sacher. Soloist: Ernst Schön (Songs).

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.57 a.m., Time Signal and Fanfare from the Tower of Our Lady's Church, Cracow. 12.5 p.m., Programme Announcements. 12.10, Light Music on Gramophone Records. 1.20, Weather Report. 1.25 to 3.10, Interval. 3.10, Announcements. 3.15, Economic Notes. 3.30, Boy Scouts' Report. 3.35, Programme for Children. 4.0, Light Music on Gramophone Records. 4.20, Talk on History. 4.40, Talk: Marshal Pilsudski's Literary Work. 5.0, Programme for Music Teachers. 5.15, Popular Music on Gramophone Records. 5.40, Talk: Wages and Unemployment. 5.55, Programme Announcements. 6.0, Talk on Biology. 6.20, News. 6.25, Light Music from the Café Ziemianska. 7.0, Miscellaneous Items. 7.20, Agricultural Notes. 7.30, Literary Talk. 7.45, Radio Journal. 8.0, Dance Music. 8.55, Sports Notes. 9.0, Radio Journal. 9.5, Pianoforte and Violin Recital of Henry Melcer's Music: Sonata for Violin and Pianoforte; Transcriptions of Moniuszko Songs: (a) Evening Song, (b) Spring, (c) Spinning Song, (d) Alla menuetto, (e) Vivo. 10.0, Topical Talk. 10.15, Light Music on Gramophone Records. 10.35, Talk in Esperanto: Physical Culture in Poland; relayed from **Cracow (959 kc/s, 312.8 metres).** 10.55, Weather Report and Police Notes. 11.0, Dance Music from the Café Gastronomia.

ZURICH.—See **Schweizerischer Landessender.**

THURSDAY

APRIL THE TWENTIETH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Orchestral programme. Violin and pianoforte recital.
LONDON REGIONAL	Variety programme.
MIDLAND REGIONAL	Military Band programme.
NORTH REGIONAL	The Yorkshire Comedy Players.
WEST REGIONAL	Vocal and instrumental concert, from Exeter.
SCOTTISH REGIONAL	Chamber music from Glasgow.
BELFAST	The Music of Handel, orchestral concert.

ABROAD

BERO-MUNSTER	8 p.m. Mozart concert from Basle.
HILVERSUM	8.55 p.m. Brahms concert, conducted by W. Mengelberg, from Amsterdam.
HUIZEN	8.40 p.m. Commemoration of the fourth centenary of the birth of William of Orange, relayed from Amsterdam.
KONIGSWUSTERHAUSEN	7 p.m. Programme for Adolf Hitler's birthday (relayed by other German stations).
LANGENBERG	9 p.m. Max von Schilling's concert.
PRAGUE	8.5 p.m. The Czech Philharmonic Orchestra, conducted by K. Jirak.
ROME	8.45 p.m. Symphony concert, conducted by D. Amfithetrov.
SOTTENS	8 p.m. Operetta: "Bastien und Bastienne" (Mozart), from Geneva.
VIENNA	8.5 p.m. The Choral Society and Symphony Orchestra.

ATHLONE

725 kc/s, 413 metres, 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Stock Reports, Weather and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Variety Music on Gramophone Records. **7.10,** Dublin Cattle Market Report. **7.20,** News Bulletin. **7.30;** Time Signal. **7.31,** French Lesson. **7.45,** Talk on the Spring Show. **8.0,** Music by a Mandoline Quartet. **8.20,** Bourders—Farce, presented by the Leven Players. **8.50,** Pianoforte Solos by K. MacNamee. **9.0,** The Station Orchestra. **9.30,** Soprano Solos by E. O'Driscoll. **9.50,** The Station Orchestra. **10.30,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. Talk in the Interval. **8.0,** Request Gramophone Concert. **8.30,** Exchange Quotations and Talk in Catalan. **9.0,** Light Music on Gramophone Records, followed by News Bulletin. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange, and Market Prices. **10.5,** Concert by the Station Orchestra. **10.30,** Concert of Aragonese Jotas. **11.0,** El Gordo de Navidad—Comedy in Two Acts (Miguel Nieto). **12 Midnight** (in an interval), News. **1.0 a.m. (Friday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Notes, Tourist Report and Announcements. **8.20,** Giornale radio and Annouucements. **8.30,** Time and Announcements. **8.35,** Military Band Concert, conducted by Salvatore Rubino: Overture, The Siege of Corinth (Rossini); Sunto e scena del delirio from Lucia di Lammermoor (Donizetti); Suite from Les Erynnies (Massenet); Selection from Dejanire (Catalini); Prologue to Mephistopheles (Boito); March, Ispica (Rubino). In the intervals, Talk and Miscellaneous Notes. **10.30,** Light Music on Gramophone Records. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**5.0 p.m.,** Talk. **6.25,** Time and Programme Announcements. **6.30,** Dinlogue in French. **7.0,** Recital of Folk Songs. **7.30,** Popular Music on Gramophone Records. **8.5,** See **Vienna. 10.0,** News, followed by Cigány Music from the Rudnicanin Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, (1,635 metres); 60 kW.—**12 noon,** Weather for Farmers. **12.2 p.m.,** Concert of Gramophone Records: Jubel-Overtüre (Weber); Chorus from The Mastersingers (Wagner); Variations on the "Kaiser Quartet" (Haydn); Four Marches (Frederick the Great); Academic Festival Overture (Brahms); Kaiser-Marsch (Wagner); followed by second Weather for Farmers. **12.55,** Nauen Time Signal. **1.45,** News Bulletin. **2.0,** Gramophone Concert of Light Music, relayed from **Berlin (Witzleben). 3.0,** Song Recital by Young Hitlerites. **3.30,** Weather and Exchange Quotations. **3.45,** Friedrich Areubövel reads from his own Works. **4.0,** Talk for Women. **4.30,** Concert from **Berlin (Witzleben). 5.10, Talk:** The Re-Birth of the Nation. **5.30,** Orchestral Concert of Classical Operetta Music. Soloist, Margarete Slezak (Songs): Käte's Song from Die sieben Schwaben (Millöcker); Melody from Wiener Blut (Joh. Strauss); Song from Die schöne Galathee (Suppé); Melody and Waltz, from The Bird Fancier (Zeller); Drinking Song, from Das verwunschene Schloss (Millöcker). **6.0,** A Poem. **6.5,** Agricultural Talk. **6.30,** String Quartet in E Flat (Mozart). **6.55,** Weather for Farmers and Announcements. **7.0,** Transmission for all German Stations: Programme for Adolf Hitler's Birthday; Horst Wessel-Radio Play (Hanns Ewers and Paul Beyer); Song of the Forge, from Siegfried (Wagner), by Karl Hartmann, and the Augmented Station Orchestra, conducted by Edwin Lindner; Speech by Dr. Josef Goebbels. **9.10,** See **Breslau. 10.20,** Weather, News and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Programme to be announced.

BERLIN

WITZLEBEN, 745 kc/s, 419.5 metres; 1.5 kW.—Programme not received in time for going to Press.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,078 kc/s, 279 metres; 14 kW.—**6.25 p.m.,** Pianoforte Recital by R. Macudzinski. **6.55,** Radio Report. **7.0,** See **Prague. 7.10,** Review of Plastic Art. **7.25,** A Play of the Year 1826 (Lukavsky) with Music by K. Hasler. **7.55** till Close Down, See **Prague. 11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—1.20 p.m.,** Gramophone Concert of Popular Music. **1.45,** Time, Weather, News and Exchange. **2.5,** Gramophone Concert of Light Music. **3.10,** Agricultural Prices. **4.0,** Talk by Erich Goebel: My First Meeting with Adolf Hitler. **4.30,** Recital of Soldiers' Songs by Kurt Becker (Bass): Der Trompeter an der Katzbach (Greger); Die Grenadiere (Reissiger); Two Songs (Loewe): (a) Prinz Eugen, der edle Ritter, (b) Fridericus Rex; Der tote Soldat (Esser); Der Geworbene (Kurt Becker). **5.0,** Talk: From Youth Societies to National Socialism. **5.30,** Agricultural Prices. **5.35,** When we march Side by Side—a Nazi Appeal to German Youth. **6.30,** An Address to the Youth of Silesia. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 9.0,** News Bulletin. **9.10,** Concert by the Silesian Philharmonic Orchestra, conducted by Gustav Havemann: Concerto grosso (Handel); Variations on a Theme by Haydn (Brahms); Fifth Symphony in C Minor (Beethoven). **10.20,** Time, Weather, News, Sports Notes and Programme Announcements. **10.45,** Answers to Correspondents on Technical Questions. **10.55,** Late Concert. **12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by J. Janota: Overture, Patrie (Bizet); Suite, Impressions d'Italie (Charpentier); Suite in D, Op. 39 (Dvorák). **5.10,** Press Review. **5.20,** Children's Concert. **5.50,** Educational Talk. **6.0,** Literary Review. **6.15,** See **Prague. 6.25,** German Transmission: News and Two Talks. **7.0,** See **Prague. 7.25,** Radio Report on Industry. **7.55,** See **Prague. 11.0** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Gramophone Concert: Selection from Mignon (Thomas); Piece (Zimmer); Waltz Suite from The Count of Luxembourg (Lehár); Rhapsodiana (arr. Debroy Somers); Le raccomodeur de faience (Raoul Soler); Serenade (Metra); Selection from The Land of Smiles (Lehár); Waltz, Verschmähte Liebe (Lincke); A Little Nest (Eblinger); Selection from Aïda (Verdi). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Little Radio Orchestra, conducted by Leemans: March, Semper Fidelis (Sousa); Waltz, Märchen aus dem Orient (Joh. Strauss); Ballet Music from Terpsichore (Ganne); The Coolies of Sumatra (Jessel); Violin Solo, Le canari (Poliakin); Girls (Poot); Potpourri of Suppé Music (Michaelov). **5.0,** Concert by the Radio Orchestra, conducted by M. Walpot: March, Unie (Walpot); Overture, Solidarité (Weyts); Waltz, Quand l'amour meurt (Crémieux); Melody (Crabbé); Ballet Music from Lakmé (Delibes). **5.30,** Programme for Children. **6.0,** Talk on Cooking. **6.15,** Gramophone Music: Valse caprice (Rubinstein); Allegro appassionato (Saint-Saëns); Dance of the Waves from Loreley (Catalani). **6.30,** Concert by the Little Radio Orchestra, conducted by Leemans: Marche grecque (Ganne); Suite, Pantins et poupées (de Taye); Barcarolla veneziana (Leoncavallo); Selection from The Carnival Fairy (Kalman); Pianoforte Solo, Rondo (Guillaume); Suite, A Mediterranean Cruise (Jalowicz). **7.15,** Review for Workers. **7.30,** Sports Review. **8.0,** Concert by the Radio Orchestra, conducted by M. Walpot: Overture, Die Fledermaus (Joh. Strauss); Waltz, A Day in Seville (Waldteufel); Potpourri of Suppé Music (Michaelov); The Student passes by (Ibanez); Potpourri of Walloon Music (Wangermée). **8.45,** Talk on the Songs of Jules Jouy, with Illustrations. **9.30,** Concert (contd.): Eine Schachtel Soldaten (Siede); Selection from La Fille de Madame Angot (Lecocq); The Blue Pavilion (Armandola); Mazurka, The Czarina (Ganne); Potpourri of Viennese Operetta Music (Robrecht). **10.0,** Journal Parlé. **10.10,** Gramophone Concert: Part I, Dances: Japanese Mazurka, La mousmé (Ganne); Mazurka (Lochmann); Waltz, Roses (Metra); Foxtrot, Down Sunnyside Lane (Campbell); Waltz, Mimosa (Joues); Foxtrot, Hot and Heavy (Busby). Part II: Classical Music: Tarantella and Dance from La Giara (Casella); Habanera (Chabrier); Pieces from Iberia (Debussy).

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**12 Noon,** Concert by the Small Orchestra, conducted by P. Leemans. Soloist: Mlle. Vera Morgau (Songs). March of the Doges (Ross); Melody (Wood); The Musical Box and Pianola (Antiga); Songs: (a) Ave Maria, (b) Serenade (Kugler); Humorous Pieces (Leonard); Songs: (a) Mysterie (De Boeck), (b) Song (Stradella); Selection from The Chocolate Soldier (O. Straus). **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert: Overture, A Midsummer Night's Dream (Mendelssohn); Hymn to the Sun from The Golden Cockerel (Rimsky-Korsakov); Chorus from Der Freischütz (Weber); Frühlingsnacht (Schumann-Liszt); Eine kleine Nachtmusik (Mozart); Melody (Gluck); Coronation March (Saint-Saëns). **5.0,** Gramophone Concert: Potpourri, Das Beste vom Besten (Dostal); Spring (Hildach); The Temple of the Bells (Yoshitomo); Selection from White Horse Inn (Stolz-Benatzky); The Student passes by (Ibanez); Dream of Love after the Ball (Czibulka); Suite of Popular Russian Airs (Eysler); Overture, Orpheus in the Underworld (Offenbach). **5.45,** Programme for Children. **6.22,** Book Review. **6.30,** Gramophone Records for Children. **7.12** Announcements. **7.15,** Talk on Films. **7.30,** Talk for Women. **8.0,** Concert by the Symphony Orchestra, conducted by Mr. Meulemans: Symphonic Poem, Till Eulenspiegel (R. Strauss); The Pathetic Symphony (Tchaikovsky). **8.50,** Talk. **9.5,** Concert (contd.); Symphonic Suite, Scheherazade (Rimsky-Korsakov); Academic Festival Overture (Brahms). **9.55,** Evening Prayer. **10.0,** Le Journal Parlé. **10.10,** Extracts from André Chénier—Opera (Giordano) on Gramophone Records by the Soloists, Choir and Orchestra of the Scala, Milan, conducted by Molajoli.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert by the Dinico Orchestra. **7.0,** Talks on Politics, Sociology, and Law. **7.55,** Time Signal. **8.0,** Symphony Concert, conducted by C. Nottara: Concerto grosso in D Minor; Fantasia (Dubois). **8.30,** Talk. **8.45,** Symphony Concert (contd.): Symphony in A (Beethoven); Divertissement rustique (Sabiu Dragoi). **9.45,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **7.35 p.m. to 12.0 midnight.—5.30 p.m.,** English Lesson. **6.0,** Organ Recital from St. Stephen's Church; Concerto No. 1 in G minor, Op. 4 (Handel); Aria from St. Paul (Mendelssohn); Adagio in D Flat (Liszt); Alleluja (Humel); Concerto in F Op. 137 (Rheinberger). **7.0,** Talk. **7.35,** Recital of Songs, by Lajos Losonczi and Jenö Viranyi, sung by Margarete Nagy and Bela Csoka. **8.40,** A Play (Ludwig Zilahy). **10.30,** News Bulletin. Followed by Concert by the Jenö Farkas Cigány Band, relayed from the Café Spolarich.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time and Chimes from the Town Hall. **12.5 p.m.,** String Ensemble Concert relayed from the Hotel d'Angleterre. **2.0 to 2.40,** Interval. **2.40,** Concert of New Danish Dance Music. In the Interval at **3.25** (approx.), Reading. **4.40,** Programme for Boys. **5.40,** Exchange and Fish Market Prices. **5.50,** Talk: Paradoxes in Mathematics and Physics. **6.20,** English Lesson. **6.50,** Weather Forecast. **7.0,** News. **7.15,** Time Signal. **7.16,** Talk: How to improve Working Conditions. **7.45,** Danish Lesson. **8.10,** Twenty-seventh Concert from the State Broadcasting Building. The Station Symphony Orchestra, conducted by Hans Weisbach. Soloist: Einar Larson (Songs). Overture, Egmont (Beethoven); Two Songs; Symphony in B Flat (Haydn); Song from Prince Igor (Borodin); Ten Minutes Interval; Symphonic Poem, Ein Heldenleben (R. Strauss). **10.15,** News. **10.30,** Reading. **10.50,** Dance Music relayed from the National Scala. In the interval at **12 Midnight,** Time and Chimes from the Town Hall. **12.30 a.m. (Friday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,327 kc/s, 226 metres; 10 kW.—**12 Noon,** Popular Music on Gramophone Records. **12.30 p.m.,** News. **12.45,** Programme for Children. **5.30 to 7.0,** Programme in English by the I.B.C. C. Danvers-Walker, B. MacNabb and F. Lamping. **5.30,** Concert of Light Music for Worthing and Littlehampton Listeners. The Blue Danube (Joh. Strauss); Song, Charming; Air de Ballet (Herbert); Songs: (a) I remember you from somewhere, (b) West Wind; Chinese Fantasy (Deppen); Tales from the Vienna Woods (Joh. Strauss); Songs: (a) Excuse me, Lady, (b) I'm just a Vagabond; Londonderry Air; Roses from the South (Joh. Strauss). **6.15,** Trio Concert for Brighton and Hove Listeners. Un peu d'amour (Silesu); Friend o' mine (Sanderson); Violin Solo, Larghetto (Weber); Chanson triste (Tchaikovsky); Love's old sweet Song (Molloy); Violin Solo, In the month of April (Aldington); Narcissus (Nevin); Cavatina (Raff); Valse bluette (Drigo); Pizzicato from Sylvia (Delibes); Toréador et Andalouse (Rubinstein); Selection from Cavalleria rusticana (Mascagni). **7.0,** News. **7.30,** Answers to Correspondence and News. **8.30 to 10.0,** Programme relayed from the Town Hall, Rouen. **8.30,** Talk. **8.45,** Instrumental Concert. **10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music by the Ibcolians: Laughing at Life; Building a Home for you; A little Love Song; Out of Nowhere; Hello, Beautiful; Just a Gigolo; Poor Kid; Mood Indigo; When I take my Sugar to Tea; You're the one I care for; Laughing at the Rain; Lady, play your Mandoline; Mad about you; The Peanut-Vendor; Two little Blue little Eyes. **11.0,** Organ Recital: Waltzland Selection (arr. Stoddon); A Brown Bird singing (Haydn Wood); Chanson (Friml); Schön Rosmarin (Kreisler); Love's Garden of Roses (Haydn Wood); Broken Dreams (Spitalny); Spirit of America (Zamecnik). **11.30,** Celebrity Concert of Gramophone Records: She's the

APRIL 20th THURSDAY *continued*

Lass for me, by Sir Harry Lauder; Hand me down my Walking Cane, by the Boswell Sisters; Don't wear your Heart on your Sleeve, by Jack Hulbert and Betty Davies; At the Races, by Flannagan and Allen; I'll never be the Same, by Greta Keller; A Spot of Bother, by Clapham and Dwyer; Pardon me, Pretty Baby, by Jack Smith. **12.0 Midnight,** Club Concert for Yeovil and Taunton Listeners: Bells across the Meadow (Ketelbey); Glowing Embers (Marsden); Down in the Forest (Landon Ronald); Drink to me only (Calcott); Eleanore (Coleridge-Taylor); The Wedding of the Rose (Jessel); Wine, Woman and Song (Strauss); The Captain of the Team (Longstaffe); Song of the Highway (May); Humoresque (Dvorák); The Bumble Bee's Wedding (Clare); Here's to the Old Days (Caldwell); Hocin' (Richards); Leanin' (Sterndale Bennett); Fleurette (Fletcher). **1.0 a.m. (Friday),** Accordion Band Music: Selection from Carmen (Bizet); C'est un petit nid (Eblinger); J'aime la musique (Parsons); Selection from Faust (Gounod); La Javanette (Bozi); Les bas à pointes (Lefebre); Selection from Congress Dances (Heymann). **1.30,** Vocal Trios: When it's Springtime in the Rockies; To-day's a Sunny Day; Painting the Clouds with Sunshine; Orchestra: The Gold Diggers of Broadway; Crying for the Carolines; Louise; Tiptoe through the Tulips. **2.0,** Dance Music by the Ibeolians: Looking on the Bright Side; Marta; Please don't mention it; Shadows on the Window; Moonlight on the River; What makes you so adorable?; By the Fireside; Don't tell a Soul; Song of the Harp; Let's all dance the Polka; Hummin' to myself; How are you?; Night shall be filled with Music; Long Ago. **2.57,** I.B.C. Good-night Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—**4.30 p.m.,** Concert by the Station Orchestra, conducted by Walter Caspar. Soloist: Kathe Kickhefel (Contralto). Overture, Julius Cæsar (Händel); Es blaut die Nacht from Julius Cæsar (Händel); Du, die ich heiss geliebt, from Orpheus (Händel); Overture and Andante grazioso, from Don Juan (Gluck); Cantata for Voice and Orchestra, Ariadne auf Naxos (Haydn); Symphony No. 30 (Haydn); Old Dance Music. **6.0,** Talk: Books as Works of Art. **6.25,** The Homeless Mercenary—Reminiscences of Difficult Times. **6.50,** Time, Announcements, Weather and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben).** **8.0,** The Contemporary History of the Soldier. **9.0,** See **Langenberg.** **10.0,** Time News, Weather and Sports Notes.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse); **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—**2.10 p.m.,** Gramophone Concert of Operetta Music: Selection from Gasparone (Millöcker); Es war einmal, from Im Reiche des Indra (Lincke); Waltz from Eva (Lehár); Air from Boccaccio (Suppé); Selection from Paganini (Lehár); Two Airs from The Czarevitch (Lehár); Air from Der Page des Königs (Goetze); Selection from Der arme Jonathan (Millöcker). **3.0,** Exchange. **3.40,** Shipping Notes. **4.0,** Programme for Young People. **4.30,** See **Heilsberg.** **5.30,** Talk: Theories on Race and Heredity. **5.55,** Edvard Mörike Programme, with Commentary by Dr. Haupt. **6.20,** Review of Children's Books. **6.45,** Exchange and Weather. **7.0,** Transmission for all German Stations, relayed from **Breslau.** **9.0,** Concert of Hermann Unger's Music, by the Hamburg Philharmonic Choir and Orchestra: Festival Prelude and March; Promenade Music for Small Orchestra; Old German Songs for Mixed Choir; Nacht-Skizzen. **10.0,** Time, Weather, Announcements, Sports Notes, and Police Report. **10.20,** Topical Talk. **10.30,** Concert of Dances by the Station Chamber Orchestra, conducted by Gerhard Maasz. Soloist, Richard Beekmann (Pianoforte).

HANOVER.—See **Hamburg.**

HEILSBERG

1,635 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.**—**1.5 p.m.,** Gramophone Concert: Overture, Der Freischütz (Weber); Horst-Wessel-Gedenkmarsch (Bayer); Military Symphony (Haydn); An Appeal to the Nation, by Dr. Goebbels; Entry March from Tannhäuser (Wagner); Bayerischer Defilier-Marsch (Scherzer); Potpourri of German Folk Songs, Hohfriedberger-Marsch (Roland); Overture, Die Fledermaus (Joh. Strauss); Stahlhelm-Bundesmarsch (Blume); King Frederick March (Radeck). In the interval at **1.30,** News. **2.30 to 3.0,** No Transmission. **3.0,** Agricultural Prices and Exchange Rates. **3.30,** Talk: The Evolution of Flying. **4.0** (from **Danzig**), Concert by the Danzig Municipal Orchestra, conducted by G. Lessing: Overture, Masaniello (Auber); Lohengrin Fantasia (Wagner); Weber Potpourri (Schreiner); Overture, Heimkehr aus der Fremde (Mendelssohn); Selection from Der liebe Augustin (Fall); Kirschblütenfest (Dieker); Kavalier-Walzer (Nedbal). **5.45,** Talk: The German Engineer in South America. **6.15,** Agricultural Prices. **6.25,** Agricultural Talk. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs-Wusterhausen):** Adolf Hitler Birthday Programme. **10.0,** Weather, News and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**)—Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.10 a.m.,** Pianoforte and Song Recital; Pianoforte Solo: Theme and Variations (Mozart); Soprano Solos, Four Songs (Grieg): (a) Letzter Frühling, (b) Solveig's Cradle Song, (c) Margaretens Wiegenlied, (d) Laut der Welt; Pianoforte Solo, Waltz (Chopin). **11.40,** Dressmaking Lesson. **12.10 p.m.,** Pianoforte and Song Recital (contd.): Pianoforte Solos, (a) Nocturne (Chopin), (b) Two Waltzes, Op. 15 (Schäfer); Soprano Solos, (a) La femme du soldat (Rachmaninov), (b) Après un rêve (Fauré), (c) Mai (Fauré), (d) L'adieu suprême (Pierné), (e) Hymne d'amour (Pierné); Pianoforte Solos, (a) Mazurka, Op. 41 (Kuiler), (b) Song from De Maas (v.d. Sigtenhorst-Meyer). **12.40,** Time Signal. **12.41,** Concert by the Wireless Orchestra, conducted by Nico Treep: Overture, Queen for a Day (Adam); Suite saharienne (Ackermans); Le Pas des fleurs (Debbes); Selection from Fedora (Giordano). Gramophone Records: Waltz, Acclamations (Waldteufel); Canto amoroso (Sammartini); Barcarolle (Tchaikovsky); Jota aragnesa (Saint-Saëns); Toréador et Andalouse (Rubinstein); Selection from La Gioconda (Ponchielli). Gramophone Records: Selection from Rigoletto (Verdi); Tarantella (Rossini); Prachsel Marsch (Fucik). **2.55 to 3.10,** Interval. **3.10,** Light Music on Gramophone Records. **3.40,** Dressmaking Lessons. **4.25,** Popular Music on Gramophone Records. **4.40,** Programme for Hospitals. **5.10,** Song Recital by Sissy Kalker. **5.40,** Reading for Young People. **6.10,** Concert by the Wireless Orchestra, conducted by Nico Treep: Overture, La Dame Blanche (Boieldieu); Suite, Joyous Youth (Coates); Selection from Faust (Gounod); Ange d'amour (Waldteufel); Phantom Melody (Ketelbey); Schön Rosmarin (Kreisler); March, Hand in Hand (Blon). **7.10,** Sports Talk. **7.40,** Electoral Address. **8.10,** English Lesson. **8.40,** Time Signal and News. **8.50,** Light Music on Gramophone Records. **8.55,** Brahms Concert, by the Concertgebouw Orchestra, conducted by Dr. Willem Mengelberg, relayed from the Concertgebouw Amsterdam. Soloist, Hona Durigo (Alto): Academic Festival Overture; Symphony No. 1, Haydn Variations; Rhapsody, for Alto Solo, Choir and Orchestra. **11.0,** Light Music by Kovacs Lajos and His Orchestra. **11.40** (in an interval), News. **12.40 a.m.** (Friday), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**12.55 to 2.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). **12.55,** Concert by the K.R.O. Orchestra, conducted by J. Gerritsen: March, Zivil und Militär (Schrammel); Overture, Frau Luna (Lincke); Selection from Giroflé-Girofla (Lecocq); Waltz, Carnavals-Botschafter (Joh. Strauss); Potpourri, Heimatsklänge (Krome); Gramophone Records; Overture, Chal Romano (Ketelbey); Selection from Schön ist die Welt (Lehár); By the Blue Hawaiian Waters (Ketelbey); Waltz, Wiener Praterleben (Translateur). **2.40** till Close Down, Programme of the Christian Radio Society (N.C.R.V.). **2.40,** Popular Music on Gramophone Records. **3.40,** Programme for Women. **4.10,** Interval. **4.40,** Bible Reading, followed by Song and Organ Recital. **5.40,** Song Recital by Cora de Lange-Van Rijn (Mezzo-soprano): German National Songs (arr. T. Salzmann): (a) In stiller Nacht, (b) Stehn zwei Stern am hohen Himmel, (c) Es tönt des Abendglöckleins Schlag, (d) Es ritt ein Reiter, (e) Es dunkelt schon in der Heide; Gramophone Records; Sapphische Ode (Brahms); Sonntag (Brahms); Das verlassene Mägdlein (Wolf); Fussreise (Wolf); Gramophone Records; La vie antérieure (Dupare); Phydilé (Dupare). **6.25,** Handwork Lesson for Young People. **6.55,** Talk. **7.25,** Dressmaking Lesson. **7.40,** Electioneering Address. **7.55,** Talk. **8.10,** Police Report. **8.25,** Religious Report. **8.40,** Carillon Recital and Orchestral Music in Commemoration of William the Silent, relayed from the Royal Palace, Amsterdam. **9.40,** Talk for Parents. **10.10,** Johanna von Orleans (Hofmann), by the Concordia Male Voice Choir, conducted by H. Tobé; Soloists: Jo Hendriehs-Zalsman (Soprano) and Hendrik Koning (Bass). **10.55,** News. **11.10,** Popular Music on Gramophone Records. **12.10 a.m. (Friday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News and Exchange. **8.10,** Economic Review. **8.20,** Fashion Review. **8.30,** Song Recital. **9.0,** Weather, Exchange and News. **9.15,** Radio Concert. **11.0,** Tourist Talk in German. **12 Midnight to 1.0 a.m. (Friday),** Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight,** Organ Recital: La Serenata (Braga); Violin and Organ Duet, Intermezzo from Cavalleria rusticana (Mascagni); A Perfect Day (Jacob Bond); In a Chinese Temple Garden (Ketelbey); Love's Old Sweet Song (Molloy); For the Sake of the Days gone by (Wallace); Who am I? (Newman); Scottish Medley. **12.30 a.m.,** Dance Music: Dip your Brush in the Sunshine; Misty Mornin'; Let a little Pleasure interfere with Business; Saratoga Swing; Washboards get together; Stevedore Stomp; Kazoo; The Dicty Glide. **12.57,** I.B.C. Good-night Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamurg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Concert conducted by Wolf: March, Dem Lenz entgegen (Blankenburg); Overture, Die Landstreicher (Ziehrer); Liebesleid (Kreisler); Schön Rosmarin (Kreisler); Römische Suite (Zimmer); Selection from Lilac Time (Schubert-Berté); Waltz, Die Schönen von Valencia (Morena). **12.50 p.m.,** Weather, Time, and News. **1.0,** Concert conducted by Eysoldt. Soloist: Anne Nicolai (Contralto); March, Ins blühende Land (Schmidt-Hagen); Overture, Der Improvisator (d'Albert); Four Songs (Wolf): (a) In den Schatten meiner Locken, (b) Gesang Weylas, (c) Feuerreiter, (d) Storchenbotschaft; Selection from The Miracle (Humperdinck); Schubert-Potpourri (Ralf); Invitation to the Dance (Weber); Selection from Lohengrin (Wagner); Märchen-Ouverture (Rust); Waldteufel-Reigen (Weninger). In the interval at **2.0,** News. **2.30,** Sponsored Programme with Gramophone Records. **3.30,** Economic Notes and Time. **3.50,** Programme for Children. **4.20,** Notes on the Broadcasts for Schools. **4.30,** Beethoven Chamber Music: Bagatellen for Pianoforte, Op. 33: (a) No. 1 in E Flat, (b) No. 2 in C, (c) No. 4 in A, (d) No. 7 in A Flat; Scottish Songs from Op. 108 for Contralto, with Pianoforte, Violin, and 'Cello accompaniment; Variations in G for Pianoforte; Adagio and Minuet from the 'Cello Sonata, Op. 5g; Trio, Op. 1, No. 3, in E Minor for Pianoforte, Violin, and 'Cello. **5.45,** Talk: Cathedrals in the Upper Rhine District—Speyer, Worms, and Mainz. **6.5,** Talk on Social Problems. **6.25,** French Conversation Lesson. **6.45,** Weather, Time, Economic Notes, and Sports Results. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen).** **9.0,** Max v. Schillings Concert. The Station Orchestra, conducted by Buschkötter. Soloists: Kläre Hansen (Soprano) and Anita Berber (Violin): Glockenlieder for Soprano and Orchestra; Violin Concerto. **10.0,** News and Sports Results. **10.30,** Serenade and Dance Music, conducted by Eysoldt. **12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**4.0 p.m.,** Concert by the Dresden Philharmonic Orchestra, conducted by Florenz Werner and the Pirna Teachers' Choral Society, conducted by Rudolf Märker: Overture, Alessandro Stradella (Flotow); Auf der Wanderung—Five Poems for Baritone Solo, Male Voice Choir, String Quartet, Two Horns and Pianoforte (Dehnert); Altsteyrische Spiel-und Tanzmusik (Pachernegg); Festival March (Kretschmer); Two German Dances (Unger). **5.30,** Weather and Time. **5.35,** Notes for Taxpayers. **5.50,** Exchange Quotations. **6.0,** Health Talk: Work and Rest. **6.15,** Political Talk. **6.35,** Talk: The Fifteenth Anniversary of the Death of Manfred von Richthofen. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen).** **9.10,** Concert by the Leipzig Symphony Orchestra and Male Voice Choir; Conductor: Dr. Ludwig Neubeck; Soloists: Karl Kamann (Baritone) and Max Fest (Organ); Der Fahneneschwur (Siegfried Wagner), for Male Voice Choir and Full Orchestra; Deutschland, Op. 24 (Ludwig Neubeck), for Baritone, Male Voice Choir, Eight Solo Voices, Full Orchestra, and Organ. **10.5,** News and Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 27 kW.—**8.0,** Song Recital by Betetto Julo. **8.40,** Choral Concert. **9.30,** Quintet Concert. **10.0,** Time and News.

MADRID

ARANJUEZ, EAQ, 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** Programme relayed from **Madrid, EAJ7.** In the interval, Radio Chronicle. **1.0 a.m. (Friday),** Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Radio Journal, and Programme for Children. **9.15,** News Bulletin and Political Review. **9.30 to 10.0,** Interval. **10.0,** Linguaphone English Lesson. **10.30,** Chimes, Time Signal, and Political Review. **10.45** (approx.), Variety Programme. Part I. Song Recital by Guillermina Criado: (a) Bercense from Jocelyn (Godard), (b) El majo discreto (Granados), (c) Aria from Madame Butterfly (Puccini), (d) Song from the Cycle, Die schöne Müllerin (Schubert), (e) Aria from Tosca (Puccini). Part II., Orchestral Concert relayed from the Hotel Nacional. **12.45 a.m. (Friday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**6.30 p.m.,** German Transmission: Two Talks. **7.0,** See **Prague.** **7.25,** Wind Instrument Concert. **7.55** till Close Down, See **Prague.** **11.0** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**6.30 p.m.,** Dance Music or Concert, relayed from the Radio Theatre or the Conservatoire. **8.0,** Weekly Review and Answers to Correspondence in German. **9.0,** Weekly Review and Answers to Correspondence in French. **9.30,** Programme Announcements. **9.55,** Announcements. **10.5,** Talk in Swedish.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—**12 Noon,** Gramophone Concert of Classical German Music. **1.0 p.m.,** Orchestral Concert, conducted by Erich Kloss: Overture, Czar and Carpenter (Lortzing); Larghetto (Beethoven); Scherzo (Schubert); Vogel als Prophet (Schumann); Waltz, Die Romantiker (Lanner); Selection from The Valkyries (Wagner); Badenweiler-Marsch (Fürst). **2.0,** Time, Weather, Programme Announcements, News, and Exchange. **3.0,** Reading from Das Talschloss (Konrad Zoller). **3.25,** 'Cello and Pianoforte Recital by Alexander Wolffhügel and Emmy Stilling: 'Cello Solos: (a) Sarabande (Händel), (b) Rustic Dance (Zeller); Variations for Pianoforte on a Schumann Theme (Brahms). **3.55,** Weather and Agricultural Notes. **4.10,** Reminiscences of Ludwig Thoma. **4.30,** See **Frankfurt.** **5.45** (from **Nürnberg**), Talk: A Struggling Industry of the Frankenwald. **6.5,** Agricultural Talk. **6.25,** Contemporary German History. **6.45,** Time, Weather, and Agricultural Notes. **7.0,** Programme for all German Stations, relayed from **Berlin (Königs Wusterhausen).** **10.0,** Quintet for Violin, Two Violas, Organ, and 'Cello (Mozart). **10.20,** Time, Weather, News, and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**5.30 p.m.,** Song Recital by M. Einar Elligen. **6.0,** Talk, relayed from **Trondheim, 605 kc/s, 495.8 metres.** **6.30,** Studio Service. **7.0,** Announcements, Weather, and News. **7.30,** Agricultural Talk. **8.0,** Time Signal. **8.1,** Concert by the Norwegian Balalaika Orchestra. **8.30,** Pianoforte Recital by Max Raebel. **9.0,** Talk. **9.20,** Announcements, and Concert. **9.40,** Weather and News. **10.0,** Topical Talk. **10.15,** Relay of European Stations. **12 Midnight** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Notes, Agricultural Notes, and Giornale Radio. **8.20,** Light Music on Gramophone Records. **8.30** (in an interval), Time Signal and Announcements. **8.45,** Operetta

APRIL 20th **THURSDAY** *continued*

Music. Extracts from: (a) Rossini (Bellini), (b) Addio giovinezza (Pietri). **9.30,** Lu fighiu masculu—Dialect Play (Volpes Luchesi). **10.0,** Operetta Music (contd.). Extracts from: (a) Frederica (Lehár), (b) Madama di Tebe (Lombardo). **10.55,** News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**6.45 p.m.,** Theatre Review. **7.0,** Le Journal Parlé. **7.20,** Weather Report. **8.20,** Weather Report. **8.30,** Gramophone Concert: Le Chasseur maudit (Franck); Nocturne (Franck); Selection from Rédemption (Franck); La Procession (Franck); Les Béatitudes (Franck); Symphonie sur un chant montagnard français (d'Indy); Selection from Mam'zelle Nitouche (Hervé); Waltz from The Arabian Nights (Joh. Strauss); Waltz, Wiener Bürger (Ziehrer); Pasodoble, Terre Hispana (Sentis). **10.0** (approx.). Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Programme for Children. **7.30,** Light Music on Gramophone Records. **8.0,** Agricultural Notes. **8.15,** Interval. **8.30,** 'Cello and Pianoforte Recital by Pierre Fournier and E. Gendron: Sonata in F Sharp Minor (Huré); Pianoforte Solos (Chopin): (a) Etude, (b) Waltz, (c) Polonaise; Toccata (Frescobaldi); Après un rêve (Fauré); Intermezzo (Granados); 'Cello Solo: Requiebros (Cassado). **9.30,** Orchestral Concert: Soloist, Marguerite Perney (Songs) and Igerko Spiller (Violin): Gnomenparade (Noack); Tango, Jalousie (Gade); Prière d'une vierge; Waltz, Gold and Silver (Lehár); Song, Souvenir; Melody (Rubinstein); Violin Solo, Le Nigum; Tango des fauvettes (Bixio); Futilité (Carara-Grammont); Rumba (Samuel-Witteup). **10.30,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Protestant Address by the Reverend T. Roux. **12.30 p.m.,** Orchestral Concert, Invitation to the Waltz (Weber); Selection from La Traviata (Verdi); Songs on Gramophone Records: (a) Amarilli (Caccini), (b) Cara Piccina (Lama); Lusinga (de Curtis); O Sole mio (di Capua); Selection from Cavalleria rusticana (Mascagni); Pianoforte Solos (Chopin): (a) Nocturne, (b) Two Waltzes; Songs on Gramophone Records: (a) Two Songs from Faust (Gounod), (b) Aria from William Tell (Rossini), (c) Aria from Tosca (Puccini); Ballet Music from Les deux Pigeons (Messager). In the intervals at **1.0,** Exchange, News and Weather, and at **1.30,** Exchange. **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.30,** Gramophone Records: Ballet Music from Gretna Green (Guirand); Selection from Prince Charming (Parès-Van Parys); Un tout petit baiser from Louis XIV (Parès-Van Parys). **6.45,** Legal Talk: Juvenile Courts. **7.0,** Dialogue: The Author Behind the Footlights and in the Public Eye. **7.20,** Orchestral Concert: Impressions nationales (de la Tombelle); Minuet (Moszkowsky); Yetta (Lecocq); Belgian March (Fourdrain). **7.45,** Review of the German Press; Commercial Prices and News. **8.0,** Manon—Opera (Massenet), on Gramophone Records. In the intervals at **8.30,** News and Weather; at **8.40,** Review by Bonnaud, and at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**10.0 p.m.,** Work-a-day Thoughts. **10.5,** Business News. **10.15,** Ballroom Promenade. **10.30,** Weather Report. **10.32,** Market Reports. **10.45,** Programme to be announced. **10.57,** David Lawrence Dispatch. **11.0 to 12.15 a.m. (Friday), New York** Relay. **11.0,** Homay Bailey. **11.15,** Dick Daring. **11.30,** Singing Lady. **11.45,** Little Orphan Annie. **12.0 Midnight,** Our Daily Food—George Rector's Cooking School. **12.15 a.m. (Friday),** Time Signal. **12.16,** Weather Report. **12.17,** Teaberry Sport Review. **12.22,** Press News Reeler. **12.29,** Temperature Report. **12.30,** KDKA Orchestra. **12.45,** Today's News by Lowell Thomas, from **New York. 1.0,** Pepsodent Amos 'n' Andy, from **New York, 1.15,** Concert Footlights. **1.45,** The Townsend Murder Mystery. **2.0 to 5.1, New York** Relay. **2.0,** Captain Diamond's Adventures. **2.30,** Time Signal and Rin Tin Tin Thrillers. **2.45,** Thurston, the Magician. **3.0,** Death Valley Days. **3.30,** Wayne King's Orchestra with Lady Esther. **4.0,** Carson Robison's Pioneers. **4.15,** Vic and Sade. **4.30,** Radio City Variety Programme. **5.1,** Teaberry Sport Review. **5.11,** Temperature Report. **5.12,** Weather Report. **5.13,** KDKA Artist Bulletin. **5.15,** Press Last Minute News Flashes. **5.20,** Bertha Schmid (Soprano). **5.30,** Smith Ballew and his Orchestra. **5.58,** KDKA Artist Bulletin. **6.0,** Hotel McAlpin Orchestra, from **New York. 6.30,** Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**5.20 p.m.,** See **Brno. 5.50,** Gramophone Records. **6.5,** Agricultural Report. **6.15,** Talk for Workers: The Possibility of a Workers' Museum. **6.25,** German News. **6.30,** German Transmission: Review of New Books and Agricultural Report. **7.0,** Chimes and News. **7.10,** English Lesson. **7.25,** See **Moravská-Ostrava. 7.55,** Talk on the following Transmission. **8.5,** Concert by the Czech Philharmonic Orchestra and Choirs, conducted by K. Jirak; Soloist, S. Novak (Violin): Komensky Festival Overture, Op. 34 (Fibich); Concerto in D Minor, Op. 104, for Violin and Orchestra (Foerster); The Storm, Op. 42, for Soloists, Choir and Orchestra (Novák). **9.0** (in the interval), Time Signal. **10.0,** Time and News. **10.15,** Organ and Pianoforte Recital from the Beranek Cinema. **11.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.**—**6.0 p.m.** (from **Geneva**), Sports Talk. **6.20** (from **Geneva**), Lesson in Esperanto. **6.35** (from **Lausanne**), Italian Lesson. **7.0** (from **Lausanne**), Weather, News and Announcements. **7.30** (from **Lausanne**), Literary Talk. **8.0** (from **Geneva**), Bastien und Bastienne—Operetta in One Act (Mozart). **8.45** (from **Geneva**), Reading: Fables (La Fontaine). **9.0,** Concert by the Radio-Suisse Romand Orchestra. **10.0,** News and Weather. **10.15** (approx.), Close Down.

REYKJAVIK

2,500 kc/s, 1,200 metres; 21 kW.—**9.5 p.m.,** Popular Music. **9.30,** Weather. **9.40,** Light Music and Announcements. **10.0,** Chimes and News. **10.30,** Reading. **11.0,** Concert by the Radio Quartet, followed by Popular Music on Gramophone Records.

RJUKAN.—See **Oslo.**

ROME

Call 1RO; 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.**—**7.45 a.m.,** Gymnastics. **8.15 to 8.30,** Giornale Radio and Announcements. **12.30 p.m.,** Weather and Light Music on Gramophone Records. **1.0,** Humorous Talk. **1.5 to 2.15,** Orchestral Concert. In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **2.0,** Time and Announcements. **4.45,** Children's Radio Review. **5.10,** Announcements. **5.15,** Exchange and Giornale Radio. **5.30 to 6.15,** Vocal and Instrumental Concert. Nilde Pignatelli (Violin), Vera Nadda Poggioli (Soprano), and Maria Meloni (Mezzo-Soprano). Violin Solos: (a) Hebrew Melody (Achron-Auer), (b) Scherzo (Dittersdorf); Arioso for Mezzo-Soprano, from Samson and Delilah (Saint-Saëns); Duet from Adriana Lecouvreur (Cilea); Violin Solos: (a) Serenade, A Corallina (Pick-Mangiagalli), (b) Prelude and Allegro (Pugnani-Kreisler); Soprano Solo from Siegfried (Wagner); Duet from La Gioconda (Ponchielli). **7.0 (Naples),** Shipping and Sports Notes. **7.10,** Agricultural and Dopolavoro Notes. **7.20,** Giornale Radio. **7.30,** Sports Notes and Tourist Report. **8.0,** Time, Announcements, and Talk. **8.15,** Light Music on Gramophone Records. **8.30,** Talk. **8.45,** Symphony Concert, conducted by Daniele Amfitheatrov. Soloist, Nino Rossi (Pianoforte). Fifth Symphony in E Minor from the New World (Dvorak); Talk on Literature and Art; Concerto in D Minor for Pianoforte and Orchestra (Bach); Biedermeier Waltz (Barlow); American Panorama (Amfitheatrov). **10.55,** News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**1.0 a.m. (Friday),** Southern Jubilee Quartet. **1.15,** Stock Reports. **1.30 to 4.0, New York** Relay. **1.30,** Donald Novis (Tenor). **1.45,** The Goldbergs. **2.0,** Fleischmann Hour. **3.0,** Capt. Henry's Show Boat. **4.0,** Lucky Strike Hour, from **New York,** followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**6.30 p.m.** (from **Basle**), Heinrich Stilling reads from his own Works. **7.0,** Time, Weather, and Traffic Report. **7.15** (from **Basle**), Elementary Italian Lesson. **8.0** (from **Basle**), Mozart Concert. **9.30,** Weather and News. **9.40** (from **Zurich**), Concert by the Radio Orchestra. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA; 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**4.45 p.m.,** Shorthand Lesson. **5.5,** Studio Service. **5.30,** Programme for Children. **5.45,** Popular Music on Gramophone Records. **6.45,** Elementary English Lesson, relayed from **Jönkoping (1,490 kc/s, 201.3 metres). 7.15,** Weather and News. **7.30,** Talk: The Religious Development of the Jews. **8.0,** Military Band Concert. **8.50,** A Visit with the Microphone. **9.20,** Recital of German Songs, by Carl Richter. Songs (Schumann): (a) Du bist wie eine Blume, (b) Mondnacht, (c) Die beiden Grenadiere; Songs (Brahms): (a) Die Mainacht, (b) Alte Liebe, (c) Vergebliches Ständchen; Songs (Liszt): (a) Es muss ein Wunderbares sein, (b) Die drei Zigeuner. **9.45,** Weather and News. **10.0,** Concert by the Radio Orchestra. Soloists: Gösta Björk (Violin), and Ally Hallman (Songs). Concerto No. 2 in E Minor for Violin and Orchestra (Heintze); Notturno—Three Songs, with Orchestral Accompaniment (Rangström); Variations and Finale (Hakanson). **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Gramophone Concert of Classical Music. **12.45 p.m., News. 1.0,** Time and Exchange. **1.5,** Orchestral Concert, conducted by Maurice de Villers: Prelude and Dance from Das Pensionnat (Suppé); Waltz, Tales from the Vienna Woods (Joh. Strauss); Selection from Der Bettelstudent (Millöcker); Waltz from Eva (Lehár); Selection from The Bird Fancier (Zeller); Waltz, Wiener Faschings kinder (Ziehrer); Overture, The Gipsy Baron (Joh. Strauss). **2.0,** Programme for Children. **3.0 to 4.15,** Interval. **4.15,** French Elocution Lesson. **4.30,** Programme for Children, relayed from **Bordeaux-Lafayette. 6.0,** Talk in German: The Cause of France's Unity. **6.15,** Talk for Women. **6.30,** Gramophone Concert: Hungarian Fantasia (Liszt); Ballad, Op. 19 (Fauré); Caprice viennois (Kreisler); Mephistopheles (Boito); Morgen (R. Strauss); Hymn to the Sun (Rimsky-Korsakov); Aria (Bach); In questa tomba (Beethoven); Melody (Koennemann). **7.30,** Time and News. **7.45,** Dance Music on Gramophone Records. **8.15,** Press Review in German and Lottery Results. **8.30,** Song and Pianoforte Recital of Music by Léon Kauffmann, with the Composer at the Pianoforte; Mme. L. Kauffmann (Songs); Songs: (a) Das Heimlige Waibje, (b) Ragenächt, (c) d'Härbschtnabel; Sonatina for Pianoforte; Four Songs; Pianoforte Solo; Songs: (a) Augenzauber, (b) Kammzauber, (c) Mondzauber, (d) Sternwein. **9.30,** Press Review in French. **9.35,** Concert of Jazz Music, conducted by M. Roskam. **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**12 Noon** (from **Freiburg**), Military Band Concert: March, Einig Volk (Friedemann); Overture, Das Nachtlager von Granada (Kreutzer); March, Deutsches Blut (Wollny); Intermezzo, Entry of the Spring Flowers (Kockert); Selection from The Gipsy Baron (Joh. Strauss); Furor teutonicus. **1.15 p.m.,** Time, News, Weather, and Programme Announcements. **1.30,** Concert from **Munich. 2.0,** Concert, arranged by the Post Office. **2.30,** Spanish Lesson. **3.0,** Elementary English Lesson. **3.30,** Hitler Birthday Programme for Young People by Young People. **4.30,** See **Frankfurt. 5.50,** Time, Weather, and Agricultural Notes. **6.0,** Talk: German Youth and the Future. **6.25,** Talk: German Youth and Relief Work. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 9.0,** See **Langenberg. 10.0,** Time, News, Weather, and Programme Announcements. **10.20,** Kreisleriana (Schumann), by Otto Sonnen (Pianoforte). **10.50** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**6.15 p.m.,** Hawaiian Guitar Music. **6.30,** Programme for Children. **7.0,** Opera Music: Selection from L'Africaine (Meyerbeer); Bacchanale from Samson and Delilah (Saint-Saëns). **7.15,** News, Racing Results, and Exchange. **7.25,** Local News. **7.30,** Popular Songs. **7.45,** Viennese Music. **8.0,** Arias from Operas: Jewel Song from Faust (Gounod); Aria from Sigurd (Reyer); Prayer from Tosca (Puccini). **8.15,** Selection from: (a) The Geisha (Jones), (b) Rose Marie (Friml). **8.30,** Violin Solos. **8.45,** Instrumental Music. **9.0,** Music Hall. **9.30,** Orchestral Music. **9.45,** Songs and Military Music. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco: Potpourri of Old Airs; Tango des Fauvettes (Bixio); Soldiers' Chorus from Faust (Gounod); Selection from Rigoletto (Verdi); Cuckoo Waltz (Jonasson). **11.0 to 12 Midnight,** Programme in English by the I.B.C. W. Brown-Constable announcing. **11.0,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: Selection from The Belle of New York (Kerker); Song: My Little Irish Cottage; Duet: Rocky Mountain Lullaby; Quintet: My curly headed Baby (Clutsam); Duet: Little Old Church in the Valley; Medley of Irish Jigs (Hanrahan); Quintet: Medley of Old Tunes. **11.30,** Dance Music: Ain't I the Lucky One; Wah-de-dah; Underneath the Harlem Moon; Sweet Rhythm; I'm playing with Fire; I'll never be the same; Here it is Monday; As long as love lives on. **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Friday),** Vocal Tangos. **12.15,** Instrumental Solos. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.10 p.m.** till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**5.10-6.0 p.m.,** Orchestral Concert. **6.35,** Giornale Radio, Agricultural and Dopolavoro Notes. **7.0,** Time, Tourist Report, and Gramophone Records of Light Music. **7.20,** Giornale Radio. **7.45,** Gramophone Records (contd.). **8.0,** Announcements, Giornale Radio, Weather, and Variety Music on Gramophone Records. **8.45,** Talk on the following transmission. **9.0,** Relay of an Opera. In the intervals: Talk and Literary Notes, and Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and **9,969 kc/s, 50.26 metres (Evensong);** 10 kW.—**11.0 to 11.15 a.m.,** Religious Information in French. **8.0 to 8.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—**5.0 p.m.,** Concert by the Aurel Nemes de Alamor Orchestra: Overture, Morning, Noon and Night (Suppé); Waltz, Ballsirenen (Lehár); The Mill in the Black Forest (Eilenberg); Spring Song (Gounod); Potpourri, Strauss-Millöcker-Suppé (Ziehrer); Overture, Eine Vision (Lehár); Flieger-Marsch (Dostal); Selection from Countess Maritza (Kálmán). **6.10,** Talk: Musical Gatherings in Old Vienna. **6.35,** Talk, arranged by the Board of Trade. **7.0,** Notes on National Theatre Week. **7.10,** Talk: Peace and Christian Ethics. **7.30,** Time, Weather and Programme Announcements. **7.40,** Legal Talk: Is the Accused guilty? **8.5,** Tenth Orchestral Concert of the Gesellschaft der Musikfreunde-Ravag, relayed from the Musikvereinssaal. The Vienna Choral Society and Symphony Orchestra, conducted by Oswald Kabasta. Soloists: Ria Ginster (Soprano), Rosette Anday (Contralto), Fritz Krauss (Tenor), and Friedrich Schorr (Baritone). Von deutscher Seele (Pfitzner). In an interval at **9.0** (approx.), News and Weather. **10.25,** Announcements. **10.30,** Concert of Variety Music.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from the Tower of St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Concert by the Station Orchestra, conducted by Oziminski: Overture, Norma (Bellini); Selection from Faust (Gounod); Barcarolle (Tchaikovsky); Waltz (Bucalossi); Minuet and Gavotte from I Pagliacci (Leoncavallo); Mazurka (Tchaikovsky); Spanish Dances (Moszkovsky); Rhapsody No. 2 (Liszt). **1.20,** Weather Forecast. **1.25 to 3.10,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Popular Music on Gramophone Records. **3.35,** Talk: The Protection of Young Girls. **3.50,** Popular Music on Gramophone Records. **4.25,** Intermediate French Lesson. **4.40,** Talk. **5.0,** Light Music on Gramophone Records. **5.40,** Topical Talk. **5.55,** Programme Announcements. **6.0,** Talk: The Rebirth of the Polish State. **6.20,** News. **6.25,** Light Music relayed from the Café Gastronomia. **7.0,** Miscellaneous Items. **7.20,** Agricultural Talk. **7.30,** Reading. **7.45,** Radio Journal. **8.0,** Concert by the Station Orchestra, conducted by S. Nawrot; Soloist: A. Stromberg (Clarinet): March (Sousa); Petite Suite, No. 1 (Micheli); Serenade (Grünfeld); Clarinet Solos: (a) Air de Concert (Neibig), (b) Waltzes (Wiedemann); Potpourri, Fortissimo (Kálmán); Clarinet Solos: (a) Song (Stark), (b) Variations (Berr); Waltz Intermezzo from Naila (Delibes); Intermezzo, Bibi et Bob (Demaret); Mazurka (Namyslowsky). In the interval, Sports Notes and Radio Journal. **9.30,** Dramatic Programme. **10.15,** Dance Music relayed from the Maison Foukier. **10.55,** Weather Forecast and Police Notes. **11.0,** Dance Music relayed from **Lwow, 788 kc/s (381 metres).**

ZURICH.—See **Schweizerischer Landessender.**

FRIDAY

APRIL THE TWENTY-FIRST

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	"The Ringer," a play by Edgar Wallace.
LONDON REGIONAL	"The King's Double," a feature programme by M. C. Webster. Concert of contemporary music.
MIDLAND REGIONAL	Variety programme.
NORTH REGIONAL	"A Blackpool Night's Entertainment."
WEST REGIONAL	"Spring in poem, madrigal, and song," choral programme.
SCOTTISH REGIONAL	"The Lost Cause," a story of the '45, told by Compton Mackenzie.
BELFAST	"There's Music in the Air," feature programme.

ABROAD

BRESLAU and BERLIN (Witzleben)	7 p.m. Report from the Richthofen Museum, etc. "Richthofen flies," a radio picture (relayed by other German stations).
BUDAPEST	7.30 p.m. Opera: "Don Pasquale" (Donizetti) and "Fanny Elssler" (M. Nador).
HUIZEN	10.10 p.m. Mozart concert.
LAHTI	7.5 p.m. Symphony concert from the University, Helsinki.
PALERMO	8.45 p.m. Opera: "L'Elisir d'Amore," by Donizetti.
PRAGUE	9.15 p.m. Comic opera: "In the Well," by Blodek.
STOCKHOLM	8.15 p.m. English songs by a male voice choir.
STRASBOURG	8.30 p.m. Opera: "La Perichole," by Offenbach.
WARSAW	8.15 p.m. Symphony concert from the Philharmonie.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2 p.m.,** Time Signal, Stock Reports, Weather, and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Variety Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Talk on Gardening. **7.45,** Talk on Architecture. **8.0,** Variety Concert by the Station Orchestra and Soloists. **9.15 to 10.30,** Programme of Irish Music. **9.15,** Flute Solos by A. McNamara. **9.25,** Song Recital by P. Parle. **9.40,** Pipe Solos by P. Martin. **9.50,** The Station Orchestra. **10.30,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Records. **8.30,** Exchange Quotations. **9.0,** Light Music on Gramophone Records, and News Bulletin. **10.0,** Chimes from the Cathedral, Weather Forecast, Messages for Seamen, Exchange, and Market Prices. **10.10,** Orchestral Music: Overture, La Dame blanche (Boieldieu); Le dernier sommeil de la Vierge (Massenet). **10.20,** Dance Music by the Demon's Jazz Band. **11.0,** Talk in Catalan. **11.15,** Concert, relayed from the Café Español. **12 Midnight** (in an interval), News Bulletin. **1.0 a.m. (Saturday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Report, Tourist Talk and Announcements. **8.20,** Giornale Radio and Press Review. **8.30,** Time and Announcements. **8.35,** Concert of Opera Music; Soloists, Milena Barberio (Soprano) and Franco Signorile (Tenor): Overture, Sicilian Vespers (Verdi); Soprano Aria from Manon (Massenet); Tenor Solo, Tomba degli avi miei, from Lucia di Lammermoor (Donizetti); Melody from I Rantzau (Mascagni); Soprano Solo, Mi chiamano Mimi, from La Bohème (Puccini); Tenor Solo, Addio alla mamma, from Cavalleria rusticana (Mascagni); Selection from The Force of Destiny (Verdi); Overture, Nabucco (Verdi); Soprano Solo, Dalla gabbia fuggito è l'usignuolo, from Giulano (Zandonai); Tenor Solo, Giunto sul passo estremo, from Mephistopheles (Boito); Intermezzo from Marion Delorme (Ponchielli); Soprano Solo, Non mi resta che il pianto, from L'Amico Fritz (Mascagni); Soprano Solo, Dei miei bollenti spiriti, from La Traviata (Verdi); Selection from Madonna Oretta (Riccitelli). In the intervals, Talk and Theatre Notes. **10.30,** Variety Music on Gramophone Records. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**5.0 p.m.,** Talk. **6.55,** Time Signal and Programme Announcements. **7.0,** Popular Music on Gramophone Records. **7.30,** Talk for Sokols. **8.0,** Song Recital. **8.30,** String Quartet Concert. **9.0,** Saxophone Recital. **9.30,** Recital of Operetta Songs by Evka Mikulic: Songs from: (a) Paganini (Lehár), (b) The Little Dutch Girl (Kalman), (c) Countess Maritza (Kalman), (d) Baron Trenk (Albini). **10.0,** News, followed by Dance Music on Gramophone Records.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**12 noon,** Weather for Farmers. **12.2 p.m.,** Gramophone Concert: Ballet Music from Faust (Gounod); Folk Song, Nach der Heimat; Song, Mondnacht; Melody in F (Rubinstein); Czardas (Monti); Swedish Dance; Seeman-Walzer; Polka, Süsser Schatz; March, Kunst und Natur, followed by Second Weather for Farmers. **12.55,** Nauen Time Signal. **1.45,** News Bulletin. **2.0,** Gramophone Concert of Light Music, relayed from **Berlin (Witzleben).** **3.0,** Talk for Girls. **3.30,** Weather and Exchange. **3.45,** Reading (Max Mell). **4.0,** Talk, German Folk Lore and German Schools. **4.30,** Concert relayed from Leipzig. **5.10,** German for Germans. **5.30,** Talk: The Science of Defence. **6.0,** A Poem. **6.5,** Song Recital, by Johannes Maximilian: Am Rhein, am Deutschen Rhein (Ries); Der Rolandsbogen (Mania); Bonn (Bungert); Ein rheinisches Mädchen, beim rheinischen Wein (Hoppe); Das Herz am Rhein (Hill); Der Zecher an der Himmelstür (Brandt). **6.30,** Dialogue: Richthofen and his Flying Squadron. **6.55,** Weather for Farmers, and Announcements. **7.0,** Transmission for all German Stations, relayed from **Breslau** and **Berlin (Witzleben).** **8.0,** See **Frankfurt.** **9.20,** Talk: The New Deutschlandsender. **9.40,** String Quartet in G, Op. 54 No. 1 (Haydn). **10.45,** Weather Report for Shipping. **11.0,** See **Stuttgart.** **12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**6.20 p.m.,** Talk: The Listener and his Set. **6.30,** Talk: The Result of the German Expedition to the Andes, and the Discovery of a Legendary Town. **6.50,** Topical Talk. **7.0,** Transmission for all German Stations. Part 1—See **Breslau.** Part 2—**Witzleben** Transmission. Richthofen—a Memorial Address by Friedrich Georg Jünger; Richthofen flies—Radio Picture (Hermann Rossmann); Talk by Hermann Göring; Manfred von Richthofen. **8.0,** Double Concerto in A Minor Op. 102 (Brahms), for Violin, 'Cello and Orchestra (Brahms); The Station Orchestra, conducted by Eugen Jochum. Soloists: Prof. Gustav Havemann and Adolf Steiner. **8.40,** Topical Talk. **9.0,** Orchestral Concert from the Traube Weinrestaurant. **10.0,** Weather News and Sports Notes. **10.15** (approx.), Dance Music. **12 midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**7.0 p.m.** till Close Down, See **Prague.** **11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.**—**2.5,** Gramophone Concert of Dance Music: Torch Dance in B Flat (Meyerbeer); Waltz, Hofballtänze (Lanner); Polka Mazurka from Frauenherz (Jos. Strauss); Waltz, In lauschiger Nacht from Die Landstreicher (Ziehrer); Gallop, Leichtes Blut (Joh. Strauss). **2.45,** Programme arranged by the Post Office with Gramophone Records. **3.10,** Agricultural Prices. **3.25,** Programme for Young People. **3.55,** Recital on Two Pianofortes by Agnes Poser-Runke and Emil Poser: Sonata on the Quintet, Op. 34 (Brahms) on two Pianofortes. **4.35,** Talk: Kant and the Prussian Mind. **5.0,** Choral Concert, relayed from **Langenberg.** **6.15,** Agricultural Prices. **6.20,** Programme to be announced. **6.40,** Talk on Lessing. **7.0,** Transmission for all German Stations. Part I, **Breslau** Transmission. Part II, See **Berlin (Witzleben).** **8.0,** Weather for Farmers and Market Prices. **8.5,** The Students' Feast—Sequence of German Student Songs (Koschinsky), by the Radio Choir, the Radio Orchestra, and Soloists. **8.50,** Announcements. **9.0,** Dance Music by the Radio Orchestra, conducted by Franz Marszalek; Soloist, Hellmut Hallendorf (Tenor). **10.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **10.30,** Talk by Hellmut Lucas: The Experiences of a Registrar. **10.45,** Concert from **Langenberg.** **12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by J. Janota. **4.55,** Theatre News. **5.5,** See **Prague.** **6.5,** Talk on Plastic Art. **6.15,** Talk for Workers. **6.25,** German Transmission: News, Sports Report, and Two Talks. **7.0,** See **Prague.** **7.10,** Talk on Mountaineering. **7.25,** See **Prague.** **8.25,** Reading. **8.35,** Chamber Music Concert. **9.0,** See **Prague.** **11.0** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R., 590 kc s, 509 metres; 15 kW.—**11.15 a.m.,** Relay of the Peace Day Celebrations from Ypres. **12.10 p.m.,** Concert by the Little Radio Orchestra. **1.0,** Journal Parlé. **1.10,** Gramophone Records. **5.0,** Concert by the Symphony Orchestra. **6.0,** Talk: The Automobile and the Amateur. **6.15,** Sentimental Songs by Fulgence Boland—Recital. **6.35,** Concert by the Little Radio Orchestra, conducted by Leemans: Overture, The Bronze Horse (Auber); Suite, Algerian Nights (Gregh); Humoresque (de Taeye); Selection from Martha (Flotow); Pianoforte Solo, Arabesque (Schumann); Réponse à Manon (Gillet); Symphonic Foxtrot, Hallo Romania (Michaelov). **7.15,** Talk: Neurasthenia. **7.30,** Legal Talk and Literary Review. **8.0,** Concert by the Symphony Orchestra, conducted by M. Kumps; Soloist: Mlle. Mariette Lamproye (Songs); Symphonic Poem; Phaëton (Saint-Saëns); Serenade (Elgar); Two Basque Melodies (Kumps); Songs: (a) Air from Orpheus (Gluck), (b) Clair de lune (Fauré), (c) Adieu (Fauré); Selection from Gretna Green (Guiraud). **8.45,** Talk on Gliding. **9.0,** Concert by the Radio Orchestra, conducted by M. Franz André; Soloist: Mme. Myriam D'Orion (Soprano); Overture, La dame blanche (Boieldieu); Selection from The Pearl Fishers (Bizet); Air from Orpheus (Gluck); Pantins et poupées (de Taye); Meditation (Van Oost); Songs: (a) Ritorna vincitor from Aïda (Verdi), (b) Autumn Song (Elgar); Persian Dance (Guiraud); Waltz, Spring's Awakening (Scassola). **10.0,** Journal Parlé. **10.10,** Wireless Talk. **10.25,** Gramophone Records: March, The Fairest of the Fair (Sousa); A Musical Comedy Switch (arr. H. Hall); Fantasia for Clarinet from Rigoletto (Verdi); Beim Walzerkönig Strauss (Henry Weber). **11.0,** The Brabançonne.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—Programme in Flemish. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans: Marche printanière (Filipucci); Potpourri (Robrecht); Waltz, Ne m'oubliez pas (Waldteufel); Three Gramophone Reports: Potpourri, Pleasures of the Rhine (Strasser); Marche des olympiades (Demaele). **5.0,** Concert by the Radio Orchestra, conducted by M. André: Overture, The Crown Diamonds (Auber); Selection from (a) Countess Maritza (Kalman), (b) La Mascotte (Audran), (c) Viktoria and her Hussar (Abraham); Marche des marionnettes de Knokkelheen (Hullebroeck). **5.45,** Pallieter Programme. **6.30,** Gramophone Concert: Overture, Abu Hassan (Weber); Barcarolle (Chopin); Minuet from Symphony No. 5 (Schubert); Polonaise (Liszt); Romance from Symphony No. 4 (Schumann); Minuet (Paderevsky); Mephisto-Walzer (Liszt). **7.15,** Talk. **7.30,** Wireless Notes. **8.0,** Concert by the Radio Orchestra for the Four Hundredth Anniversary of the Birth of William of Orange: Conductor: F. André; Introduction for Brass Instruments; Fantasia on the Wilhelmus (Van Hoof); Three Songs; Extracts from Willem de Zwyger—Play (Paul de Mont); Melody (Van Duyse); Overture, Egmont (Beethoven); Overture, Willem de Zwyger (Van Hoof); Three Songs; Overture, La pacification de Gand (Benoit); Extracts from Vader des Vaderlands—Drama (Eduard Veterman); Pianoforte Solos: Two Dutch Marches from the War of the Spanish Succession (Averkamp); Fête populaire from La Pacification de Gand (Benoit). In the intervals at **8.45,** Reading, and at **9.0,** Announcements. **10.0,** Journal Parlé. **10.10,** Request Music: March from The Prophet (Meyerbeer); Valse des fleurs (Tchaikovsky); Waltz, Künstlerleben (Joh. Strauss). **10.25,** Variety Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert by the Station Orchestra: Overture, The Black Domino (Auber); Suite, Wedding Scenes (Smetana); Invitation to the Waltz (Weber); Rigaudon from Dardanus (Rameau). **6.0,** Radio Journal. **6.15,** Concert (contd.): Selection from Hansel and Gretel (Humperdinck); Potpourri of National Music (Paschill). **7.0,** Talks on Philosophy, Religion, History, and Geography. **7.55,** Time Signal. **8.0,** Tristan und Isolde—Opera in Three Acts (Wagner) on Gramophone Records. In the interval: Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres, 18.5 kW. Also relayed on **840 metres** from **7.25 p.m. to 12 midnight.**—**4.0 p.m.,** Talk on Tennis by Baron von Kehrling. **4.30,** Orchestral Concert, conducted by B. Melles. **4.45,** News Bulletin. **6.0,** Shorthand Lesson. **6.30,** Pianoforte Recital, by Lili Kemez; Fantasia in C Minor (Mozart); Variations in C (Mozart); Sonata in F Sharp (Beethoven); Intermezzo, On the Southern Shores of Crimea and Gopak, from Pictures from an Exhibition (Mussorgsky). **7.10,** Review of Foreign Politics. **7.30,** Don Pasquale—Opera (Donizetti) and Fanny Elssler (Michael Nador), relayed from the Opera House. After the Relay, Cigány Band Concert. **11.0,** Violin Recital by Antonio Abussi.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time and Chimes from the Town Hall. **12.5 p.m.,** String Ensemble Concert relayed from the Bellevue Strandhotel. **1.15,** Programme for Schools. **1.45,** Interval. **2.0,** Concert by the Station Orchestra. **4.0,** Opening of the South Jutland Exhibition. **5.0,** Programme for Children. **5.40,** Exchange and Fish Market Prices. **5.50,** Talk: Masterpieces of Danish Literature. **6.20,** German Lesson. **6.50,** Weather. **7.0,** News. **7.15,** Time Signal. **7.20,** Talk. **7.50,** Programme by Per Knutzon. **8.0,** Time Signal from the Town Hall. **8.1,** Variety Concert, relayed from the Folkets Hus. **9.30,** The Motive—Radio Play, after Susan Glaspell's Trifles (translated and arranged by E. and J. Thorning). **10.15,** News. **10.30,** Orchestral Concert, conducted by Fritz Mahler: Overture, Masaniello (Auber); Ballet Music from Ritter Pasman (Joh. Strauss); Overture to a Marionnette Comedy (Gál). **11.0,** Dance Music by the Richard Johansen Band, relayed from the Lodberg Restaurant. In an interval at **12 Midnight,** Time Signal and Chimes from the Town Hall. **12.30 a.m.** (approx.), **(Saturday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,327 kc/s, 226 metres; 10 kW.—**12 Noon,** Variety Music on Gramophone Records. **12.30 p.m.,** News. **12.45,** Song Recital. **5.30 to 7.0,** Programme in English by the I.B.C. Announcers: C. Danvers-Walker, B. McNabb and F. Lamping. **5.30,** Orchestral and Vocal Concert for Southampton and Winchester Listeners: Orchestra: (a) Monastery Bells (Wely), (b) The Mill in the Forest (Eilenberg); Songs: (a) Just Plain Folk (Gilbert), (b) Sleep, Baby, Sleep (Tucker), (c) I'll never ask for more (Ahlert); Orchestra: (a) Salut d'amour (Elgar), (b) Serenade (Pierné); Songs: (a) The Heart of the Sunset (Nicholls), (b) Take your To-morrow (Razaf), (c) Hello Sunshine (Murray); Orchestra: (a) Kisses in the Dark (de Michaeli), (b) In the Sudan (Sebek). **6.15,** Variety Concert for Bournemouth and Weymouth Listeners. Organ Solos: (a) A Perfect Day (Jacobs), (b) Indian Love Call (Friml); Violin and Organ Duet: Because (d'Hardelot); Organ Solos: (a) Selection from Cavalleria Rusticana (Mascagni), (b) Il Bacio (Arditi); Violin and Organ Duets: (a) I'll sing Thee Songs of Araby (Clay), (b) Drink to me only (Calcott); Organ Solos: (a) Nola (Arndt), (b) Turkish Patrol

(Michaelis); Xylophone and Organ Duet: The Whistler and his Dog (Pryor); Glow-Worm Idyll (Lincke); A Life on the Ocean (Binding). **7.0,** Radio Gazette and Local News. **7.30,** The Listeners' Hour and News. **8.30,** Concert relayed from **Boulogne.** **10.0** till Close Down. Programme in English by the I.B.C. **10.0,** Dance Music by the Ikolians: It's great to be in love; I idolise my Baby's Eyes; Flame of Desire; You call it Madness, but I call it love; Mona Lisa; You try Somebody else; By the Fireside; Ecstasy; I'm sorry dear; Falling in Love again; One little Quarrel; Life is just a Bowl of Cherries; The Song of the Islands; Bend down Sister; Save the Last Dance for me. **11.0,** Music by a Symphony Orchestra: Overture, The Caliph of Bagdad (Boieldieu); The Witches' Ride and the Gingerbread Waltz from Hansel and Gretel (Humperdinck); Violin Solo: Hungarian Dance, No. 5 (Brahms); La Capricieuse (Elgar); Selection from Tannhäuser (Wagner). **11.30,** Opera Music: Prelude to Carmen (Bizet); Prologue to I Pagliacci (Leoncavallo); Cortigiani vil razza dannata from Rigoletto (Verdi); Eri tu from A Masked Ball (Verdi); Selection from Il Trovatore (Verdi); Aria from Martha (Flotow); La Donna e mobile from Rigoletto (Verdi). **12 Midnight,** Chib Concert for Wells and Wookey Hole Listeners: The Elephant March (Ord Hume); Poem (Fibich); The Sanctuary of the Heart (Ketelbey); The Middy March (Alford); I pitch my Lonely Caravan at Night; At Dawning (Cadman); By the Blue Hawaiian Waters (Ketelbey); Le Cygne (Saint-Saëns); Kashmiri Love Song (Woodforde-Finden); War March of the Priests (Mendelssohn); That Dear Old Song; The Song of Songs; Medley of Popular Melodies. **1.0 a.m. (Saturday),** Hawaiian Duets: Hawaiian Twilight (Traditional); Sing Something Simple (Hupfeld); Kamschamola (Traditional); Three Little Words (Cheek); Bone Festa (Traditional); Alma Mia (Whidden); Hawaiian Waltzes (Traditional); Hawaiian Medley. **1.30,** Vocal Duets: Singin' in the Bath-tub; In an old World Garden; Good a'banana; Orchestra: Sunnyside Up; I'll keep off the Grass no more; Now I'm in love; Barnacle Bill the Sailor. **2.0,** Dance Music by the Ikolians: We'll always be Sweethearts; Hoch Caroline; What would you do; Sing Brothers; By the Fireside; Song of the Harp; Goodnight, little Girl, goodnight; Sweet Sixteen and never been kissed; If you were only mine; We just couldn't say good-bye; Bahama Mama; Listen to the German Band; I got Rhythm; A Great Big Bunch of you. **2.57,** I.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—6.0 p.m.,** Talk on Agricultural Policy. **6.25,** Legal Talk. **6.50,** Time, Announcements, Weather and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben)** and **Breslau.** **8.0,** Concert by the Station Orchestra, conducted by Dr. Reinhold Merten. Soloists: Willy Lang (Bass) and Anita Franz (Soprano). Part I —Mozart Programme: Overture, Lucio Silla; Two Bass Solos from The Magic Flute; Overture, Idomeneo. Part II—Classical Operetta Music. **9.20,** German Castles—Rothenfels Radio Sequence (Petrus Steigerwald). **10.20,** Time, News, Weather and Sports Notes. **10.45,** Late Concert. **12 Midnight,** Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.—2.10 p.m.,** Gramophone Concert of Opera Music: Overture, Der Freischütz (Weber); Air from The Merry Wives of Windsor (Nicolai); Air from Martha (Flotow); Ballet Music from Undine (Lortzing); Airs from (a) Der Wildschütz (Lortzing), (b) The Barber of Seville (Rossini), (c) The Gipsy Baron (Joh. Strauss); Waltz from Der Rosenkavalier (R. Strauss). **3.0,** Exchange. **3.40,** Shipping Notes. **4.0,** Easter Programme for Young People: Recitations and songs to the Lute in Dialect. **4.30,** See **Leipzig.** **5.30,** Talk: General von Moltke. **5.55,** Act II, Scene II, from Die Journalisten—Comedy (Freytag). **6.40,** Exchange and Market Prices. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Breslau** and **Berlin (Witzleben).** **8.0,** German Symphony, Op. 8 (Ludwig Lürman), by the Hamburg Philharmonic Orchestra. **9.0,** Announcements. **9.10,** Concert of Drinking Airs and Soldiers' Songs by a Male Voice Choir and the Station Chamber Orchestra: Selection from Gaudeamus (Humperdinck); Landsknechtslied for Male Voice Choir, Piccolos and Drums (Bodenstedt-Erdlen); Sword Dance from Ein Tausend Jahre Hamburger Musik (Erdlen); Quadrille from the Bunte Tanz-Suite (Erdlen); Fröhliche Kumpanei—Cantata for Male Voice Choir; Tenor Solo and Three Instruments (Rein); Pieces from the Bunte Tanz-Suite (Erdlen). **10.10,** Time, Weather, Announcements, Sports Notes, and Police Report. **10.20,** Topical Talk. **10.30** (from **Hanover**), Concert of Light Music.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.—1.5 p.m.,** Gramophone Concert. In the interval at **1.20,** News. **2.30,** Programme arranged by the Post Office, with Gramophone Records. **3.0,** Exchange and Market Prices. **3.30,** Programme for Children. **4.0,** Talk: The Mother of Unemployed Youths. **4.30,** See **Leipzig.** **5.30,** Talk on Wireless Technique. **5.45,** Agricultural Talk. **6.15,** Agricultural Market Prices. **6.25** (from **Danzig**), Talk: Modern History. **6.50,** Weather Report. **7.0,** Transmission for all German Stations—Relay from Berlin **(Witzleben)** and **Breslau.** **8.5** (from **Danzig**), Concert of Old Danzig Music arranged by the Society of German Culture: Solo Cantata: Lord, now lettest thou thy Servant depart in Peace (Du Grain)—for Soprano, two Violins, Viola, 'Cello and Harpsichord. Talk: Danzig Music and Danzig Musicians; Solo Cantata: Freue dich, Danzig (Pucklitz) for Soprano, Violin obbligato, two Violins and Harpsichord. **8.50,** News Bulletin. **9.0,** Dialogue: How do I listen to Orchestral Music? Dialogue between Dr. Müller-Blattau and Erich Seidler with reference to the following Transmission. **9.40** (approx.), The Alpine Symphony, Op. 64 (Richard Strauss), by the Königsberg Opera House Orchestra, conducted by Erich Seidler. **10.30,** Weather, News and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—**12.41 to 4.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **12.41 p.m.,** Popular Music on Gramophone Records. **1.10,** Concert of Light Music by the Kovacs Lajos Band; Soloist, Bob Scholte (Songs). **2.40,** Talk: The Struggle between Japan and China. **3.10,** Concert by the Wireless Orchestra. **4.40 to 8.40,** Programme of the Workers' Radio Society (V.A.R.A.). **4.40,** Concert by the V.A.R.A. Orchestra, conducted by H. de Groot: Granada (Garcia); Drinking Song Potpourri (Rhode); Cracoviense (Moszkowsky); Polo-Spiele (Fetras); Neu Wien (Strauss); Pilgrimage to Rokneband (Rubinstein-Morena). **5.30,** Programme for Children. **6.10,** Orchestral Concert (contd.): Socialist March (Gramm); From the Old and New World (Dvorak-Leopold); The Cuckoo (Arenski); Japanese Air (Yoshitomo); De roode vlag (Broeckx-Renes); Gramophone Records; Selection from Lilac Time (Schubert-Berté); Slav Potpourri (Wilke); Two Hungarian Dances (Brahms); Selection from Gasparone (Millöcker). **7.40,** Talk. **8.0,** Song and Organ Recital by E. Busch and J. Jong. **8.40 to 11.40,** Programme of the Liberal Protestant Radio Society (V.P.R.O.). **8.40,** Divine Service Relay. **10.40,** Gramophone Concert of Popular Music. **11.40** till Close Down, V.A.R.A. Programme. **11.40,** Organ Recital by C. Steyn: The Night when Love was born (Baer); Phantom Melody (Ketelbey); Ich will nicht wissen wer du bist (Stolz); Mammie, komm terug (Pijpers); The Girl (Wayne); Selection from The Little Dutch Girl (Kálmán). **12.10 a.m. (Saturday),** Popular Music on Gramophone Records. **12.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**11.55 a.m.** till Close Down. Programme of the Catholic Radio Society (K.R.O.). **12.55 p.m.,** Concert by the K.R.O. Boys, conducted by P. Lustenhouwer; Soloist, J. Mossel (Songs). **2.25 to 2.40,** Interval. **2.40,** Organ Recital. **3.40,** Pianoforte Recital by Jeanne Hertog: Prelude and Fugue in G Sharp Minor (Bach); Impromptu in B Minor (Schubert); Allegro appassionato (Saint-Saëns); Gramophone Records; Nocturne in A (Chopin); Etude in B (Chopin); Valse brillante in E Flat (Chopin); Allegro (Granados). **4.40,** Talk. **5.10,** Gramophone Records of Popular Music. **5.40,** Talk. **5.55,** Concert by the K.R.O. Sextet: Ahagar (Van Lindern); Waltz, Dolores (Waldteufel); Hungarian Song (Brodszky); Il natale di Pierrot (Monti); Talk; Melody (Mayerl); Potpourri, Rund um die Wolga (Borchert); Ballet Music from Coppélia (Delibes); Berceuse (Demaret). **7.10,** Talk. **7.30,** Concert (contd.): Potpourri; Strausfedern (Morena); Mein Liebling nach' dein Herzchen auf! (May). **7.50,** Talk. **8.10,** Police Notes. **8.25,** Concert by the K.R.O. Orchestra, conducted by Johan Gerritsen: Symphony No. 4 in A (Mendelssohn); Interlude: The Windfall—Radio Play (Stef van Cuyk); Selection from Der Obersteiger (Zeller); Interlude: Grandfather—Radio Play (Vletter); Potpourri; Donizettis Triumphzug (Urbach). **10.10,** Mozart Concert; Address; Introduction; Sonata for Bassoon and 'Cello in B Flat; Pianoforte Concerto in D; Der Schauspieldirektor—One Act Opera. **11.25,** Variety Music on Gramophone Records. **11.40,** News Bulletin. **11.45,** Light Music on Gramophone Records. **12.40 a.m. (Saturday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 8 kW.—**8.0 p.m.,** Entertainments' Guide. News, Financial Notes, and Exchange Quotations. **8.15,** Esperanto Lesson. **8.30,** Popular Concert. **9.0,** Weather, Racing Results and News. **9.15,** Popular Concert (contd.). **9.45,** Dance Music, relayed from the Palais de la Méditerranée, Nice. **12 Midnight** till Close Down, Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight,** Orchestral Concert: Waltz, Tales from the Vienna Woods (Strauss); Liebesfreud (Kreisler); The Cossack's Wedding Fête (Krier); The Skaters' Waltz (Waldteufel); Pierrette's Wedding (Jordon); Augero (Franco); Saschinka—Russian Potpourri (Schirmann). **12.30 a.m. (Saturday),** Songs: Whistling Waltz (Evans); Save the Last Dance for me (Spitalny); Trios: (a) When the Bloom is on the Sage (Vincent), (b) Sleepy Rio Grande (Robinson); Just Friends (Kleiner); Good-night Vienna (Posford); I'll always be true (Connelly); Mona Lisa (Sullivan). **12.57,** I.B.C. Good-night Melody. **1.0** (approx.). Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamurg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Concert from **Stuttgart.** **12.50 p.m.,** Weather, Time, and News. **1.0,** Orchestral Concert. In the interval at **2.0** (approx.), News. **2.30,** Sponsored Programme with Gramophone Records. **3.30,** Economic Notes and Time. **3.50,** Two Talks for Young People. **4.30,** Choral Concert relayed from the Westphalian Hall, Dortmund. The Women's Choir of the Dortmund Teachers' Choral Society, the Cassel A-cappella Choir, the Dortmund Quartet, and the Kranzhoff Quartet. **5.45,** Talk on Plants. **6.5,** Talk on Apprentices. **6.25,** English Conversation Lesson. **6.45,** Weather, Time, Economic Notes, and Sports Notes. **7.0,** Transmission for all German Stations, relayed from **Breslau** and **Berlin (Witzleben).** **8.0,** News. **8.5,** Concert from **Frankfurt.** **9.10,** See **Hamburg.** **10.5,** News and Sports Results. **10.30,** Serenade and Dance Music, conducted by Eysoldt. **12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—4.30 p.m.,** Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer. Soloist: Margarete Dörr (Songs): Overture, Anacreon (Cherubini); Four Songs (Brahms): (a) In Waldeseinsamkeit, (b) Mädchenlied, (c) Ständchen, (d) Meine Liebe ist grün; Wedding Music, Op. 54 (Kretschmer); Four Songs (Schumann): (a) In der Fremde, (b) Mondnacht, (c) Intermezzo, (d) Frühlingsnacht; Overture, Ilka (Doppler). **5.30,** Book Review. **5.50,** Exchange, Weather and Time. **6.0,** Talk: Johann Hinrich Wichern. **6.10,** Talk for Parents. **6.45,** The Leipzig Station informs its Listeners. . . . **7.0,** Transmission for all German Stations, relayed from **Breslau** and **Berlin (Witzleben).** **8.0,** Concert of Chamber Music, with Introductory Talk. Two Chamber Sonatas for Two Violins and Harpsichord (Neruda); Sonata for Pianoforte Duet (Seydelmann); Pianoforte Quartet in E Flat, Op. 4 (Böhner); Sonata in B Flat for Pianoforte (Häpler); Quartet for Flute, clarinet, Horn and Bassoon (Rossini). **9.0,** News Bulletin. **9.10,** The Mad Dog—Comedy (Elias Niebergall). **10.25,** News Bulletin. **10.40** (approx.), Concert by the Emdé Orchestra. **11.30** (approx.). Close Down.

LINZ.—See **Vienna.**

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** Concert of Light Music. **11.45,** Radio Chronicle. **12 Midnight,** Concert (contd.). **12.35 a.m. (Saturday),** Answers to Correspondence. **12.40,** Spanish American Talk. **12.45,** Variety Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Radio Journal, and Programme of Musical Novelties. **9.15,** News Bulletin and Political Review. **9.30 to 10.30,** Interval. **10.30,** Chimes, Time Signal, and Political Review. **10.45** (approx.), Symphony Concert on Gramophone Records: Overture, The Secret Marriage (Cimarosa); Scherzo from A Midsummer Night's Dream (Mendelssohn); El Albaicin (Albéniz); Symphony No. 5 (Tchaikovsky); Concerto in E Flat for Pianoforte and Orchestra (Liszt). **12.45 a.m. (Saturday),** News Bulletin and Programme Announcements for Spanish Listeners Abroad. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,367 kc/s, 263.8 metres; 11 kW.—**7.25 p.m.,** See **Prague.** **8.25,** A play in One Act. **9.0,** See **Prague.** **11.0** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**6.30 p.m.,** Dance Music or Concert relayed from the Radio Theatre or the Conservatoire. **8.0,** Talk in Czech. **9.0,** Talk in English: In the Days of the Czars. **9.30,** Programme Announcements. **9.55,** Announcements. **10.5,** Talk in German.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.—1.15 p.m.,** Gramophone Concert: Overture, Poet and Peasant (Suppé); Bauernflüster (Meyer-Helmund); Song from Der Bettelstudent (Millöcker); Selection from Liselott (Künneke); Song from Die schöne Galathée (Suppé); Hungarian Dance No. 5 (Brahms); Song: Zur Drossel sprach der Fink (d'Albert); Auf der Lüneberger Heide (Blume-Löns); Song: Die Post im Walde (Schäffer); Zug der Gnomen (Blon); March. **2.0,** Time, Weather, Programme Announcements, News, and Exchange. **2.20,** Programme arranged by the Post Office, with Gramophone Records. **3.5,** Programme for Mothers. **3.55,** Weather and Agricultural Notes. **4.10,** Educational Talk. **4.30,** Orchestral Concert, conducted by Erich Kloss: Overture, The Thieving Magpie (Rossini); Largo from Op. 10, No. 3 (Beethoven); Suite, Brahmsiana (Fritz); Reigen and Humoresque (Max Reger); Ballet Suite from Coppélia (Delibes); Neapolitan Serenade (d'Ambrosio); Abendlied (Schumann); Träumerei (Schumann); Perpetuum mobile (Joh. Strauss). **5.45,** Talk: The Defence of Cities in Time of War. **6.5,** Extracts from Frederica—Operetta (Lehár), by the Small Station Orchestra, the Station Choir, and Soloists. **6.45,** Time, Weather, and Agricultural Notes. **7.0,** Transmission for all German Stations, relayed from **Breslau** and **Berlin (Witzleben).** **8.0,** Concert of Chamber Music: Duet for Two Violins in Old Style (Max Reger); Cantata for Soprano, with Flute and Harpsichord obbligato (Scarlattie); Extract from the Concerto for Two Violins (Vivaldi); Cantata for Soprano, Two Violins, 'Cello, and Organ (Buxtehude). **8.40,** Band Concert. **9.40,** Immortal Words and Music—Literary and Musical Programme by the Stubenrauch Trio, Ernst Bernhardin (Baritone) and Ludwig Funk (Pianoforte): Bach: (a) Dedication to the Prince of Anhalt, (b) Prelude to the Partita No. 1 for Pianoforte; Mozart: (a) Letter (1780), (b) Rondo from the Pianoforte Trio in G; Chopin: (a) Reading from his Diary (1831), (b) Prelude in A Minor; Schumann: (a) Letter to Hans Andersen (1842), (b) Song, Der Soldat; Verdi: (a) Letter to Morelli (1881), (b) Credo from Othello; Richard Strauss: (a) Letter to Hugo von Hofmannsthal (1910), (b) Closing Trio from Der Rosenkavalier. **10.20,** Time, Weather, News, Sports Notes, and Traffic Report.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres).—5.0 p.m.**—Orchestral Concert, relayed from the Continental Hotel. Conductor, Willy Johansen: Carnival (Guirand); Waltz, Accelerationen (Joh. Strauss); Legend (Melartin); Minuet from the Second Symphony (Mozart); Selection from L'Amico Fritz (Mascagni); Granada (Albeniz); Catalonia (Albeniz); Potpourri of Viennese Music, Vindobona (Leopold). **6.0,** French Lesson. **6.30,** Humorous Programme. **7.0,** Announcements, Weather and News. **7.30,** English Lesson. **8.0,** Time Signal. **8.1,** Sacred Concert from St. Saviour's Church. The Philharmonic Orchestra, conducted by J. Mowinckel. Soloists: Mlle. Fanny Bjsta (Contralto), and M. Arno Eggen (Organ). **9.30,** Agricultural Report, Weather and News. **10.0,** Topical Talk. **10.15,** Readings. **10.45** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society, and Giornale Radio. **8.20,** Light Music on Gramophone Records. **8.30** (in an interval), Time Signal and Announcements. **8.35,** L'Elisir d'amore—Opera in Three Acts (Donizetti). In the intervals, Talk and Announcements. After the Opera, News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**6.45 p.m.,** Theatre Review. **7.0,** Le Journal Parlé. **8.20,** Weather Report. **8.30,** Literary and Musical Programme for Young People. **9.15,** Concert by the Symphony Orchestra, conducted by Edouard Flament: Fantasia on Strauss Themes (Weber); Overture, The Princess with the Golden Slippers (Rust); Selection from Madame Butterfly (Puccini); Violin Solo: Waltz, Tout Paris (Waldteufel). **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Sponsored Talk. **7.10,** Popular Music on Gramophone Records. **7.50,** Talk on Wireless. **8.0,** Talk on Music. **8.15,** Interval. **8.30,** Concert of Basque Music by the Station Symphony Orchestra. **10.30,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture Lesson. **7.30,** Weather and Physical Culture (contd.). **7.45,** Gramophone Records of Light Music. **8.0,** Press Review and Weather. **12 Noon,** Jewish Talk. **12.30 p.m.,** Gramophone Concert: Songs from: (a) The Magic Flute (Mozart), (b) Lucia di Lammermoor (Donizetti), (c) Norma (Bellini), (d) The Barber of Seville (Rossini), (e) Carmen (Bizet), (f) Faust (Gounod), (g) Louise (Charpentier), and (h) Pelléas et Mélisande (Debussy); Variations (Proch); The Rose and the Nightingale (Rimsky-Korsakov); Song from L'Amour masqué (Messager); Parlez-moi d'amour (Lenoir); Maybe (Gershwin); Trapos viejos (Alongi). In the intervals at **1.0,** Exchange, News and Weather, and at **1.30,** Exchange. **2.0,** Exchange and Announcements. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.30,** Gramophone Records: La Lettre de Manon (Gillet); Two Airs from Rip van Winkle (Planquette): (a) Si je la veux cette immense richesse, (b) Romance des enfants; Le temps des cerises (Renard). **6.50,** Talk on Social Insurance. **7.0,** Talk. **7.20,** Gramophone Records: Turkish Patrol (Michaelis); Un peu d'amour (Siliesu); Gracieuse (Koch); La légende du petit navire (Missa); Selection from The Mikado (Sullivan); Danse à Vienne (Wechsel); Joyeuse Marche (Chabrier). **7.45,** Commercial Prices and News. **8.0,** Readings. **8.30,** News and Weather. **8.40,** Gastronomic Review. **8.45,** Don César de Bazan—Play (Dumanoir and Dennery). In the interval at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**5.0 to 6.0 p.m.,** Music Appreciation Hour—Walter Damrosch conducting, from **New York. 10.0,** Work-a-day Thoughts. **10.5,** Business News. **10.15,** S.A.I. Musicale—Carnegie Tech. Chapter. **10.30,** Weather Report. **10.32,** Market Reports. **10.45,** Programme to be announced. **10.57,** David Lawrence Dispatch. **11.0,** Muskingum College Music Clubs. **11.15,** Dick Daring. **11.30,** The Singing Lady, from **New York. 11.45,** Little Orphan Annie. **12.0 Midnight,** Our Daily Food—The Story of Food, by Hendrik Van Loon, from **New York. 12.15 a.m. (Saturday),** Time Signal. **12.16,** Weather Report. **12.17,** Teaberry Sport Review. **12.22,** Press News Reeler. **12.29,** Temperature Report. **12.30,** KDKA Orchestra. **12.45,** To-day's News, by Lowell Thomas, from **New York. 1.0,** Pepsodent Amos 'n' Andy, from **New York. 1.15,** Adventures of Aunt Lulu KDKA Players. **1.30 to 4.30, New York** Relay. **1.30,** Five Star Theatre—Charlie Chan. **2.0,** Nestle's Programme. **2.30,** Time Signal and Adventures in Health. **2.45,** Howard Thurston, the Magician. **3.0,** The First Nighter. **3.30,** Armour Programme. **4.0,** Dorothy Fields and Jimmy McHugh. **4.15,** Vic and Sade. **4.30,** Bridge School of the Air. **4.45,** Concert Orchestra, from **New York. 5.0,** Time Signal. **5.1,** Teaberry Sport Review. **5.11,** Temperature Report. **5.12,** Weather Report. **5.13,** KDKA Artist Bulletin. **5.15,** Press Last Minute News Flashes. **5.20,** Smith Ballew and his Orchestra. **5.45,** Phantom Gipsy, from **New York. 5.58,** KDKA Artist Bulletin. **6.0,** Cotton Club Orchestra, from **New York. 6.30,** Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** See **Brno. 4.55,** Talk: One Hundred and Fifty

APRIL 21st **FRIDAY** *continued*

Years of the Stände Theatre. **5.5,** Concert by the Ondricek Quartet: String Quartet in C, No. 6 (Mozart); String Quartet in A, Op. 18, No. 5 (Beethoven). **6.5,** Agricultural Report. **6.15,** Talk for Workers. **6.25,** German News. **6.30,** German Transmission: Talks: (a) Eger and the Eger District, (b) Sick Benefit Societies. **7.0,** Chimes and News. **7.10,** Talk: Planning the Small Family House. **7.25,** Military Band Concert: Festzug (Oberthor); Overture, Nebuchadnezzar (Verdi); Romance No. 1, Op. 44 (Rubinstein); Toréador et Andalouse (Rubinstein); Selection from Faust (Gounod); Slovak March (Provaznik); In the Mountains (Horak); Waltz, The Blue Danube (Johann Strauss); Old Bohemian Polka (Ridky); Sokol March (Svarc). **8.25,** Popular Songs. **9.0,** Time and News. **9.15,** In the Well—Comic Opera in One Act (Blodek). In the interval at **10.0,** Time Signal. **11.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.**—**6.0 p.m.** (from **Geneva**), Reading. **6.15** (from **Geneva**), Talk on Stamp Collecting. **6.30** (from **Lausanne**), Talk. **7.0** (from **Geneva**), Weather, News and Announcements. **7.30** (from **Geneva**), Talk: The Lighting Problem. **8.0** (from **Lausanne**), Variety Concert. **10.0,** News and Weather. **10.15** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres,** and **2RO, 11,810 kc/s, 25.4 metres.**—**7.45 a.m.,** Gymnastics. **8.15 to 8.30,** Giornale Radio and Announcements. **12.30 p.m.,** Weather and Gramophone Records of Variety Music. **1.0** (approx.), Time and Announcements. **1.2 to 2.15,** Orchestral Concert: Your Smile (Coen); Majestic (Culotta); Intermezzo from Cavalleria rusticana (Mascagni); Melody (Beauregard); Nocturne (Ganne); Les Follets (Ganne); Cuban Song (Kaper); Canto d'amore (Malvezzi); Selection from The Merry Widow (Lehar); The Birth of the Blues (Henderson); Under the Umbrella with me (Mascheroni). In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **5.0** (approx.), Concert relayed from the Royal Academy of St. Cecilia. **7.0 (Naples),** Shipping and Sports Notes. **7.10,** Agricultural Report and Dopolavoro Notes. **7.20,** Giornale Radio and Light Music on Gramophone Records. **8.0,** Time and Announcements. **8.5,** Report of the International Institute of Agriculture (in Italian, French, English, German, and Spanish). **8.30,** Sports Notes and Tourist Report. **8.45,** Programme in Celebration of the National Festival. **10.55,** News Bulletin.

SALZBURG.—See **Vienna.**

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**6.30 p.m.** (from **Berne**). Talk. **7.0,** Time, Weather, Market Prices, Tourist Bulletin and Sports Notes. **7.20** (from **Zürich**), Concert of Light Orchestral Music. **7.55** (from **Berne**), The Night on the Matterhorn—A Radio Play (Oskar Wessel). **8.40** (from **Berne**), Sacred Concert. **9.30,** Weather and News. **9.40** (from **Berne**), Dance Music. **10.15** (approx.), Close Down.

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres,** and by **W2XAD** on **19.56 metres.**—**8.30 to 1.0 a.m. (Saturday), New York** Relay. **8.30,** Muted Strings. **8.45,** Three Shades of Blue. **9.0,** Sonata Recital. **9.15,** Famous Loves. **1.0 a.m.,** Kenmore Orchestra. **1.15,** Stock Reports. **1.30,** Frank and Gene (Songs). **1.45,** The Goldbergs, from **New York. 2.0,** Cities Service Concert, from **New York. 2.30,** WGY Farm Forum. **3.0,** Best Foods Musical Store, from **New York. 3.30,** Pond's Programme, from **New York.**

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Goteborg, 932 kc/s, 322 metres; Horby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**5.5 p.m.,** Programme for Children. **5.25,** Folk Music. **5.45,** Popular Music on Gramophone Records. **6.45,** Legal Talk. **7.15,** Weather and News. **7.30,** Recital of Negro Spirituals by Carl-Efraim Hellgren: Somebody's knockin' at yo' do'; Oh! Holy Lord; Oh! wasn't dat a wide Ribber; I'm troubled in the Mind; Were you there? By an' by. **7.45,** Talk: Chrétien de Troyes and French Romantic Literature in the Twelfth Century. **8.15,** Concert of English Songs by a Malo Voice Choir: Marching along (G. Bantock); The Long Day closes (Sullivan); A Sea Song (Armstrong Gibbs); Give a Rouse (Bantock); Yea, cast me from Heights of the Mountains (Elgar); After many a Dusty Mile (Elgar); Boot and Saddle (Bantock). **8.45,** The Miracle of St. Anthony—Comedy in Two Acts (Maeterlinck). **10.0,** Concert by the Göteborg Chamber Orchestra; Conductor, Tor Mann; Soloists: Heinz Freudenthal (Viola d'amore) and Magnus Jensen (Viola da Gamba); The Lady Radnor Suite in F for String Orchestra (Parry); Concerto for Viola d'amore; Viola da Gamba and String Orchestra (Telemann); Two Melodies for String Orchestra (Grieg): (a) Norwegian Melody, (b) Erste Begegnung; Two Icelandic Melodies for String Orchestra (Svendsen); Two Swedish Folk Melodies for String Orchestra (Svendsen). **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Gramophone Concert of Variety Music. **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Opera Music on Gramophone Records: Selection from Faust (Gounod); Two Airs from La Juive (Halévy); Airs from: (a) Sappho (Massenet), (b) The Pearl Fishers (Bizet); Two Airs from Samson and Delilah (Saint-Saëns); Forest Murmurs from Siegfried (Wagner); Spring Song from The Valkyries (Wagner); Two Airs from Romeo and Juliet (Gounod). **2.0 to 4.45,** Interval. **4.45,** Literary Talk in French. **5.0,** Orchestral Concert, conducted by Roskam. Soloist: M. Grégoire (Violin). Marche des Pantins (Fievet); Valse des Blondes (Ganne); Overture, Les mousquetaires au Couvent (Varney); Selection from Tosca (Puccini-Berghs); Prelude to Le Déluge (Saint-Saëns); Violin Solo: Minuet (Paderevsky); Selection from Polenblut (Nedbal). **6.0,** Trio Concert, relayed from **Lille, 1,130 kc/s (265.4 metres). 7.0,** Topical Talk in German. **7.15,** Talk for Workers in French. **7.30,** Time and News. **7.45,** Variety Music on Gramophone Records. **8.15,** Press Review in German and Lottery Results. **8.30,** La Périchole—Opera in Three Acts (Offenbach). In an interval at **9.30** (approx.), Press Review in French. **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**12 Noon** (from **Freiburg**), Concert by the Freiburg Concert Orchestra, conducted by Heinrich Pfaff. Soloist: Maria Nietzel (Contralto). Overture, La villanella rapita (Mozart); Cantata for Contralto, Organ, Violin, Viola and 'Cello (Stützel); Pastorale from the Concerto grosso (Corelli); Musette from the Concerto in G Minor for Strings (Händel); Ariadne's Lament (Monteverdi-Orff); Passacaglia from Rodrigo (Händel); Movement from the Eighteenth Symphony in F Sharp Minor (Haydn). **1.15 p.m.,** Time, News, Weather and Programme Announcements. **1.30,** Concert from **Langenberg. 2.0,** Concert arranged by the Post Office. **2.30,** Advanced English Lesson. **4.0,** Songs to the Harp—Recital by Hilde Keefer-Bluthardt, with Accompaniment by Maria Holtz. Four Songs (Schumann): (a) Requiem, (b) Die Tochter Jephtas, (c) An den Mond, (d) Dem Helden; Two Songs (Schubert): (a) Meeresstille, (b) Nachtstück; Two Songs (Liszt): (a) Wie singt die Lerche schön, (b) O Wonne im Traum. **4.30,** See **Langenberg. 5.45,** Time, Weather and Agricultural Notes. **6.0,** Talk: The Psychological Aspect of the Punishment of Criminals. **6.25,** Talk: The State Employment Schemes. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben)** and **Breslau. 8.0 to 10.20,** See **Frankfurt. 10.20,** Time, News, Weather, Programme Announcements and Sports Notes. **10.45,** Concert by the Philharmonic Orchestra, conducted by Gustav Görlich. Soloists: Gerda Hansi (Soprano) and Hans Hanus (Tenor). **12 Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**6.15 p.m.,** Argentine Music. **6.30,** Songs from Operas: O beau pays de la Touraine, from Les Huguenots (Meyerbeer); Cavatina from William Tell (Rossini); Salomé laisse-moi t'aimer, from Hérodiade (Massenet); O Star of Eve, from Tannhäuser (Wagner). **6.45,** Divertissement on Russian Songs, for Orchestra (Raband). **7.0,** Talk. **7.5,** Accordion Solos. **7.15,** News and Racing Results. **7.25,** Local News. **7.30,** Viennese Music. **7.45,** Opéra-Comique Songs: Ne parle pas, from Les Dragons de Villars (Maillart); Song from The Daughter of the Regiment (Donizetti); Gilda's Aria, from Rigoletto (Verdi). **8.0,** Operetta Music: Selection from The Land of Smiles (Lehár); Selection from Frasquita (Lehár); Ballet Music from Le Roi Pausole (Honegger). **8.15,** Melodies. **8.30,** Instrumental Solos. **8.45,** Trio in B Flat (Schubert). **9.15,** Songs from Sound Films. **9.30,** Accordion Solos. **9.45,** Viennese Music and Songs from Operettas. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Concert: Selection from The Queen of Spades (Tchaikovsky); The Nursery (Ingelbrecht); Song from Mirella (Gounod); Depuis le jour ou je me suis donnée, from Louise (Charpentier); Je connais une pauvre enfant, from Mignon (Thomas); Clair de lune, from Werther (Massenet). **11.30 to 12 Midnight,** Programme in English by the I.B.C. W. Brown-Constable announcing. **11.30,** Organ Recital: Sunshine Susie (Abrahams); The Twilight Waltz (Dubin); Three little Words (Kalmar); Close your Eyes (Carter); I'm just wearing out my Heart (Keyes); You are my Heart's delight (Lehár); Will they love me up in Heaven?—Cuban Love Song (Stothart). **11.57,** I.B.C. Goodnight Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Saturday),** Dance Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.0 p.m.,** See **Rome. 6.35** till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**5.0** (approx.), See **Rome,** Giornale Radio in the interval. **6.35,** Giornale radio, Agricultural and Dopolavoro Notes. **7.0,** Time, Report of the Royal Geographical Society, and Gramophone Records of Light Music. In the interval at **7.20,** Giornale Radio. **8.0,** Announcements, Weather, and Popular Music on Gramophone Records. **8.45,** Notes on Art. **9.0,** Symphony Concert, conducted by Fritz Reiner. Marcia Reale (Gabetti); Youth (Blanc); Hymn to Rome (Puccini). Talk in the interval. **11.0,** Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and **5,969 kc/s, 50.26 metres (Evening);** 10 kW.—**11.0 to 11.15 a.m.,** Religious Information in German. **8.0 to 8.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—**1.10 p.m.,** Gramophone Concert: Overture, Si j'étais Roi (Adam); Song from Norma (Bellini); Duet from 1 Pagliacci (Leoncavallo); Drinking Song from Hamlet (Thomas); Song from Eugene Onegin (Tchaikovsky); Slav March (Tchaikovsky). **2.0 to 3.0,** Interval. **3.0,** Time, Weather, Exchange and Announcements. **3.20,** Talk. **3.45,** Talk for Young People. **4.10,** Talk for Women. **4.35,** Talk: The Cabinet-making Industry. **4.55,** Modern Austrian Composers—The Music of Hans Gal. **5.40,** Sound Film Music on Gramophone Records. **6.10,** Tourist and Traffic Report. **6.25,** Gregor Slovenczik reads from his Book of Travels. **6.40,** Weekly Sports Report. **6.50,** Talk. **7.5,** The Inn—the History of an Austrian River. **7.30,** Time, Weather and Programme Announcements. **7.40,** Folk Music: March, Mein Oberösterreich (Fellner); Innviertler-Walzer (Fellner); Innviertler Landler (Fellner); Xylophone Solo: Renzpolka (Fellner); Waltz, Der Weg zum Herzen (Freundorfer); Da Kirta (Brixner); Der Hase und die Häsin (Zeska). **8.10,** Die einsame Tat—Play (Sigmund Graff). **10.0,** News and Weather. **10.15,** Road Report. **10.20,** Dance Music, relayed from the Café Palmhof.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Light Music on Gramophone Records. **1.20,** Weather Forecast. **1.25 to 3.10,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Aviation Report and Anti-Gas Drill. **3.30,** Talk on Maritime and Colonial Affairs. **3.35,** Review of Periodicals. **3.50,** Popular Music on Gramophone Records. **4.20,** Talk: The Union of Germany. **4.40,** Talk on Hygiene. **5.0,** Police Band Concert, conducted by A. Sielsky: Overture, The Merry Wives of Windsor (Nicolai); Ballet Music from La Juive (Halevy); Potpourri (Chambers); Suite from Sigurd Josalfar (Grieg); Mazurka (Namyslowsky); March of the Janissaries (Seventeenth Century, arr. Sielski). **5.55,** Programme Announcements. **6.0,** Talk: The Rebirth of the Polish. **6.20,** News. **6.25,** Light Music, relayed from the Café Adria. **7.0,** Miscellaneous Items. **7.20,** Press Review, relayed from **Wilno, 533 kc/s (563 metres). 7.30,** Talk on Advertising. **7.45,** Radio Journal. **8.0,** Talk on Music. **8.15,** Symphony Concert by the Warsaw Philharmonic Orchestra, relayed from the Philharmonic. Soloist: Simon Goldberg (Violin). Overture, Don Giovanni (Mozart); Violin Concerto in D (Brahms); Sonata in G Minor (Bach); Symphony No. III—the Eroica (Beethoven). In the interval, Literary Talk. **10.40,** Sports Notes. **10.45,** Radio Journal. **10.55,** Weather Forecast and Police Notes. **11.0,** Dance Music, relayed from **Cracow, 959 kc/s (312.8 metres).**

ZURICH.—See **Schweizerischer Landessender.**

SATURDAY

APRIL THE TWENTY-SECOND

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Variety programme. Orchestral concert of British light music.
LONDON REGIONAL	Tipica Orchestral programme of Viennese waltzes. Chamber music.
NORTH REGIONAL	"Frivolous Hour," a programme of wit and nonsense in music and literature.
WEST REGIONAL	Vocal and instrumental concert.
SCOTTISH REGIONAL	Choral and instrumental concert.
BELFAST	"The Lamp," a play, and "The Pigeon," a comedy, by J. Priestly-Mitchell.

ABROAD

ATHLONE	8 p.m. Opera: "Madame Butterfly," by Puccini.
BRUSSELS (No. 1)	9 p.m. Operetta: "L'Oncle Mathurin," by Weyst.
COPENHAGEN	8.30 p.m. A radio ball for the older generation.
LEIPZIG	7 p.m. Wagner concert by the Symphony Orchestra, conducted by Dr. L. Neubeck.
PITTSBURGH	2.15 a.m. (Sunday). The Boston Symphony Orchestra, from New York.
ROME	8.45 p.m. Celebration of the National Festival.
TURIN	8.45 p.m. Operetta: "Rompicollo," by Fietri.
VIENNA	7.50 p.m. Concert from St. Stephen's Cathedral. 8.55 p.m. Austrian Operetta music.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Stock Reports, Weather Forecast, and Light Music on Gramophone Records. **6.15,** Popular Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Talk on Art. **7.45,** Gaelic Talk. **8.0,** Madame Butterfly—Opera (Puccini) by the Station Orchestra, Chorus, and Soloists.

BARCELONA

RADIO-BARCELONA, Call EAJ1, 348.8 metres; 8 kW.—**7.0 p.m.,** Programme for Children. **8.0,** Request Gramophone Records. **8.30,** Exchange Quotations, followed by Catalan Grammar Lesson. **9.0,** Light Music on Gramophone Records and News Bulletin. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange, and Market Prices. **10.5,** Concert by the Station Orchestra: Ti voglio bene (Mariotti); Waltz, The Romantic Girl (Worsley); Wedding Song and Procession (Pahissa); String Quartet: La oración del torero (Turina). **10.30,** Programme relayed from **Madrid (EAJ7). 12 Midnight** (in an interval), News Bulletin.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Report. **8.20,** Giornale radio and Announcements. **8.30,** Time and Announcements. **8.35,** Concert of Operetta Music and Songs. Soloists: Michel Montanari (Tenor) and Clara Dimitri (Soprano). Neapolitan Songs, II (De Curtis); Tenor Solo, Leda (Massaro); Soprano Solo, Sul Nilo blu (d'Anzi); Selection from I monelli florentini (Ranzato); Tenor Solo, Bionda svedese (Cortopassi); Soprano Solo, Maschera bianca (Bixio); Trotta, trotta cavallino (Buenavolonta); Tenor Solo, Piccolo bar (D'Ardena); Soprano Solo, Io di amori ne ho tre (Mariotti); Selection from Malbruk (Leoncavallo); Soprano Solo, Il paese del mandolino (Moleti); Tenor Solo, Silvana (Hamud); Dove sei? (Petrini); Soprano Solo, Nimnoli d'amore (Stocchetti); Tenor Solo, In Santa Lucia (Stransky); Nacchere (Arsi-Lanza); Soprano Solo, Barcelonita (d'Anzi); Tenor Solo, La rumba che cos'è? (Paolo); Pupa sorridi (Ovedi). Talk in the interval. **10.30,** Variety Music on Gramophone Records. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**5.0 p.m.,** Popular Music on Gramophone Records. **6.55,** Time and Programme Announcements. **7.0,** Violin Recital by Mary Zezelj: Concerto in A Minor (Vivaldi); Air (Goldmark); Sicilienne and Rigaudon (Francoeur); Tango (Albeniz); Jota Navarra (Sarasate). **7.40,** Talk on Wireless. **8.20,** Programme relayed from **Zagreb, 977 kc/s, 307 metres. 10.0,** News, followed by relay of European Stations.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**12 Noon,** Weather for Farmers. **12.2 p.m.,** Gramophone Concert: followed by Second Weather for Farmers. **12.55,** Nauen Time Signal. **1.45,** News Bulletin. **2.0,** Gramophone Concert of Popular Music, relayed from **Berlin (Witzleben). 3.0,** Handwork for Children. **3.30,** Weather and Exchange. **3.45,** Werner Bergengruen reads from his own Works. **4.0,** Reading. **4.30,** Concert from **Hamburg. 5.10,** Weekly Review. **6.0,** A Poem. **6.5,** Hugo Rasch Song Recital by Eva Lindberg. **6.30,** Talk on the Dramatist, Otto Brües. **6.55,** Weather for Farmers and Announcements. **7.0,** Transmission for all German Stations, relayed from **Leipzig. 8.0,** Gerd Fricke Programme. **9.0,** Orchestral Concert, conducted by Edwin Lindner: Symphony in D (Haydn); Serenade in F for Strings (Volkmann); Rheinische Nachtmusik for Strings and Horns (Niemann). **10.0,** Weather, News and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Concert from **Leipzig. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.0 p.m.,** Concert by the German Symphony Orchestra, conducted by Manfred Gurlitt. **4.55** (approx.), Radio Report from a Wannsee Boathouse (on Gramophone Records). **5.5** (approx.), Concert (continued). **6.15,** Trio in G Minor Op. 94, for Pianoforte, Clarinet and 'Cello (Berger). **6.50** Topical Talk. **7.0,** Transmission for all German Stations relayed from **Leipzig. 8.0,** Dance Music with Rosel Seegers (Soprano). **10.0,** Weather News and Sports Notes. **10.15** (approx.), Dance Music from the Eden Pavilion. **12 midnight** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**4.10 p.m.,** Concert of Popular Music by the Station Orchestra, conducted by J. Odehazel. **5.10,** Talk. **5.25,** Light Music on Gramophone Records. **5.40,** Marionette Play. **6.40,** Talk for Housewives. **6.55,** Radio Report. **7.0,** See **Prague. 8.0,** Variety Concert. In the Interval, Sketch. **10.0,** See **Prague. 10.15,** See **Moravská-Ostrava. 11.30** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—1.10 p.m.,** Gramophone Concert of Popular Music. **1.45,** Time, Weather, News and Exchange. **2.5,** Light Music on Gramophone Records. **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Film Review. **4.0,** Programme to be announced. **4.20,** Frontier Session of the Women's Section. Central Silesian Nationalist Party, relayed from the Südpark Restaurant: Address by the President, Fräulein Wrede; Potpourri of Mountaineering Songs (Merkert); O, du Heimat, lieb und traut (Becher); Silesian Song (Mittman); Talk on East Germany, with special Reference to Upper Silesia. **5.45,** Book Review. **6.0,** Talk: The Fall of the Holy Roman Empire and the Rise of Modern Germany. **6.30,** Programme to be announced. **7.0,** Transmission for all German Stations, relayed from **Leipzig. 10.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **10.30,** Dance Music from **Berlin (Witzleben). 12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**6.25 p.m.,** German Transmission: News, followed by Song and 'Cello Recital by Klara Waldmann (Songs) and K. Truppe ('Cello). **7.0,** See **Prague. 7.25,** Pianoforte Lesson. **8.0,** See **Bratislava. 9.20,** Concert of Old Dances, by the Station Orchestra, conducted by B. Bakala. J. Polasek (Violin). Waltz from Raymond (Glazunov); Recitations: Dance from Pan Twardowski (Rozycki); Mazurka (Dvorak); Recitations; Spanish Dance (Moszkowsky); Piedmontese Dance (Sinigaglia); Recitations; Waltz, Frühlingsstimmen (Joh. Strauss). **10.0,** See **Prague. 10.15,** See **Moravská-Ostrava. 11.30** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Concert by the Symphony Orchestra, conducted by Meulemans. **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert of Viennese Music. **4.45,** Talk on Science and Industry. **5.0,** Dance Music from the Saint-Sauveur Palais de Danse. **6.0,** Talk: A Tour through Nivelles. **6.15,** Gramophone Records: Russian Airs (Wieniawsky): Romantic Waltz (Debussy); Overture, La Farce du Cuvier (Dupont). **6.30,** 'Cello Recital: Suite (Marin Marais); Chants russes (Lalo); La Fileuse (Popper). **7.0,** Song Recital by Mme. Van Hout-Volcflaert: Air from Figaro (Mozart); Romanian Song (Jongen); Three Caprices (Auric): (a) Fête galante, (b) Les Bergers, (c) Parade; Les trois princesses (Vuillermoz). **7.15,** Talk on Football. **7.30,** Review of International Affairs. **8.0,** Orchestral Concert, conducted by M. Meulemans. Overture, The Merry Wives of Windsor (Nicolai); Violin Solo: Canzonetta (d'Ambrosio); Selection from Thais (Massenet); Wind Instrument: Au Jardin (Dubois); Adoration (Paul Lagye); Wiener Bonbons (Joh. Strauss). **8.45,** Monologues. **9.0,** L'Oncle Mathurin—Operetta in One Act (Weyts). **10.0,** Journal Parlé. **10.10,** Concert by the Max Alexys Orchestra, relayed from the Ancienne Belgique.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**12 Noon,** Gramophone Concert. **1.0 p.m.,** Journal Parlé. **1.10,** Concert by the Symphony Orchestra, conducted by Meulemans. **5.0,** Concert by the Radio Orchestra, conducted by M. Charles Walpot: March (Siroux); Waltz, On the Banks of the Neva (Eilenberg); Overture, The Merry Wives of Windsor (Nicolai); Mazurka (de Boeck); Concertino for Clarinet (Weber); Selection from The Count of Luxembourg (Lehár); Ballet Music from Lakmé (Delibes). **6.0,** Gramophone Records: Sonata, Op. 81 (Beethoven); Allegro (Bela-Bartok). **6.15,** Talk: Mankind and History. **6.30,** Pictures from an Exhibition (Moussorgsky), with Explanatory Notes. **7.15,** Talk: Belgium and the Crisis. **7.30,** Agricultural and Horticultural Report. **8.0,** Concert by the Radio Orchestra, conducted by M. Walpot. Soloists: Mme. Veldya (Soprano) and M. Locufier (Tenor); Marche russe (Gaune); Overture, Semiramis (Rossini); Songs for Soprano; Waltz, Roses from the South (Joh. Strauss); Tenor Solos: (a) Song from Frederica (Lehár), (b) Air from Werther (Massenet), (c) Melody (René Rabey), (d) O Lola bianca come—Serenade from Cavalleria rusticana (Mascagni); The Student passes by (Ibañez). **8.45,** Ballet Music from Isoline (Messager) on Gramophone Records. **9.0,** Concert by the Symphony Orchestra, conducted by Meulemans: Overture, Le baruffe chiozzotte (Sinigaglia); Fantasia on two Flemish Songs (de Boeck); Melody (Uyttenhove); Waltz, Wienerblut (Joh. Strauss); Songs; Ballet Music from the Nutcracker Suite (Tchaikovsky). **10.0,** Journal Parlé. **10.10,** Gramophone Records: Selection from Miss Decima (Andran); Schön Rosmarin (Kreisler); Potpourri (Moretti); Hungaria (Doucet); Foxtrot, Xylophonia (Green); Potpourri, Broadway (Gotter, Mitchel and Conrad). **10.40,** Concert by the Paul Moreaux Orchestra from the Menuline Hall, Antwerp. **11.40,** Gramophone Records of Light Music.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert of Light Music and Romanian Music by the Sibiceano Orchestra. **6.0,** Radio Journal. **6.15,** Concert by the Sibiceano Orchestra (contd.). **7.0,** Talks on Hygiene, Sport and Tourism. **7.55,** Time Signal. **8.0,** Concert by a Russian Church Choir. **8.30,** Concert by the Station Orchestra: Festival March (Napravnik); Waltz, Prima Ballerina (Translateur). **9.0** (in an interval), Talk. **9.15,** Concert (contd.): Sincerity (Bidford) Medley of Operettas by Stolz (Dostal); Chinese Intermezzo (Dicker); Violin Solo: Canzonetta (Godard). **9.45,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **6.40 p.m.** till Close Down. —**5.30 p.m.,** Choral Concert. **6.10,** Answers to Correspondence. **6.40,** Concert by the Béla Bodries Cigány Band. **7.30,** Readings (Emmerich Toth). **8.0,** Talk on the Budapest International Fair. **8.15,** Humour in Music —Concert by the Opera House Orchestra, conducted by T. Polgar, with Gitta Halasz, Oscar Maleczky and Lajos Helmlich. **10.0,** News Bulletin. **10.10** (approx.), Variety Music on Gramophone Records.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time Signal and Chimes from the Town Hall. **12.2 p.m.,** Concert by the A. Bendix String Ensemble, relayed from the Wivex Restaurant. **2.0 to 2.30,** Interval. **2.30,** Gramophone Concert. **3.0,** Programme for Children. **3.30,** Orchestral Concert, conducted by Emil Reesen. Soloist: Solvejg Kalka (Songs). Overture, Romeo and Juliet (Bellini); Petite Suite (Debussy); Bridal Waltz from The Veil of Pierrette (Dohnányi); Norwegian Rhapsody No. 2 (Svendsen); Five Songs; Overture, The Mikado (Sullivan); Waltz, L'étoile polaire (Waldteufel); Selection from Die Faschingsfee (Kalman); Strathspey from Scenes from the Scottish Highlands (Bantok); Gallop from Naples (Lumbye). **5.40,** Exchange and Fish Market Prices. **5.50,** Talk: Rio de Janeiro. **6.20** French Lesson. **6.50,** Weather. **7.0,** News. **7.15,** Time Signal. **7.16,** Talk: Women and Unemployment. **8.0,** Time Signal from the Town Hall. **8.1,** Danish Activities—a Visit with the Microphone. **8.30 to 12 Midnight,** Radio Ball for the Older Generation. The Radio Orchestra. Soloists: Inger Hermann (Songs) and Viktor Fischer (Pianoforte). **8.30,** Orchestral Music: March, En avant (Gung'l); Amelie Waltz (Lumbye); Sophus Polka (Jensen); Mazurka, Min Itsch (Möller); Swedish Masquerade; Hopsa (Iversen); Potpourri (Lanner). **9.10,** Reading. **9.30,** Orchestral Music: March, At a Georgia Camp Meeting (Mills); Polka (Rinodshofer); Waltz, Fideles Wien (Komzak); Sextett: Mazurka, Cora (Lumbye); Polka (Wilmer); Polka, Kom Karoline (Wappaus). **10.5,** Pianoforte Solos: Polka, Zigzag (Lumbye); Waltz, En gylden Dag (Thommessen); Polka, I Felten (Lumbye). **10.15,** Orchestral Music: Humorous March (Czibulka); Valse des blondes (Ganne); Mazurka, Colombine (Lumbye); The Lancers (Mikel); Polka, Britta (Lumbye). **10.50,** News. **11.10,** Vaudeville and Operetta Songs: Song from an Operetta (Bay); Song from La Fille de Madame Angot (Lecocq); Melodies by Joh. Strauss. **11.25,** Orchestral Music: Jagerndorfer March (Möller); Polka, Serpolette (Jensen); Waltz, Doctrinen (E. Strauss); Melody, Mazurka, Telephon (Fahrbach); Trippevals (F. Nielsen); Polka, Violetta (Joh. Strauss); Forgangen Nat, Champagne Gallop (Lumbye). **12 Midnight,** Town Hall Chimes and Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,327 kc/s, 226 metres; 10 kW.—**12 Noon,** Variety Music on Gramophone Records. **12.30 p.m.,** News. **12.45,** Concert of Light Music. **5.30 to 7.0,** Programme in English by the I.B.C. Announcers, C. Danvers-Walker, B. McNabb and F. Lamping. **5.30,** Vocal and Orchestral Concert for Tunbridge Wells and Isle of Thanet Listeners: Good Night Sweetheart (Noble); I'm following you (Dryer); Would you like to take a Walk (Dixon); Orchestral (a) My Sunshine is you (Stolz), (b) Last Night I dreamed of you (Kalman). Let me sing and I'm happy (Berlin); Singin' in the Bathtub (Magidson); To my Mammy (Berlin); Orchestral, (a) Sons les toits de Paris (Moretti), (b) Chinatown, my Chinatown (Schwartz); Rosmin' through the Roses (O'Flynn); Wedding Bells are ringing for Sally (Sherman). **6.15,** Orchestral Concert for Dover and Folkestone Listeners: Old Timers (arr. Griffiths); Me and the Man in the Moon; Pianoforte Solos, (a) Dance from The Enchanter (Holbrooke), (b) Rangoon Rice Carriers (Holbrooke); Russian Rhapsody (Nussbaum); Waltz from Der Rosenkavalier (R. Strauss); Pianoforte Solo, Selection from Whoopee (Kahn); When the Lilac blooms again (Rotter); Over the Waves (Rosas); Pianoforte Duet, Bow Bells (Sullivan); Gipsy Moon (Borganov). **7.0,** Radio Gazette and

Local News. 7.30, The Listeners' Hour and News. 8.30, Concert, relayed from **Boulogne.** 10.30, Dance Music. 11.0 till Close Down, Programme in English by the I.B.C. 11.0, Club Concert for Clevedon and Dunster Listeners: Overture, William Tell; Father of Victory; O Maiden, my Maiden; The Wayside Rose; Souvenirs of Switzerland; O, Mistress Mine; Varsity March; Evening in a Village Inn; Sambre et Meuse; If I am dreaming; The Golden Bird; I give my Heart; Squirrel Dance. **12 Midnight,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: Waltz, Frühlingsstimmen (Joh. Strauss); Glockenspiel Solo: The Black Forest Chiming Clock; Shall my Soul pass through Ireland?; Liebesfreud (Kreisler); Xylophone Solo: Goldfishes (Kroeger); My Irish Home; Autumn Leaves (Pepper); Souvenir de Capri (Becce). **12.30 a.m. (Sunday),** Popular Songs: Wonderful you; Every little Kindness; Up with the Lark; Orchestra: Song of the West; When the Lilac blooms again; The Hymns my Mother used to sing; Wandering Around. 1.0, Instrumental Solos: Handsaw Solos: (a) Un peu d'amour (Silesu), (b) Roses of Picardy (Haydn Wood); Guitar Solo: Dear old Pal of Mine (Robe); Handsaw Solo: I love you; Piccolo Solo: Deep blue Sea; Handsaw Solo: When I am dreaming; Piccolo Solo: Scherzo from Sylvia (Delibes); Handsaw Solo: Someone like you. 1.30, Vocal Trios: Time on my Hands; Laughing down the Lane; Bubbling over with Love; Orchestral Selection from The Love Parade; Roll on Mississippi; I'll always be true; Laughing at the Rain. 2.0, Dance Music by the Ibcolians: Sheltered by the Stars; Just a little Home for the old Folks; You've got me in the Palm of your Hand; Fit as a Fiddle; I can't believe it's true; Roll along Kentucky Moon; Willow weep for me; Her Name is Mary; Look what you've done; On a dreamy Afternoon; My Romance; Pleeze, Mr. Hemmingway; Till To-morrow; Moonlight on the River. 2.57, I.B.C. Good-night Melody. 3.0, Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—4.30 p.m.,** Concert by the Station Orchestra, conducted by Dr. Reinhold Merten: Soloist: Rudolf Racky (Pianoforte) Overture in D, Op. 43 (Boccherini); Pianoforte Concerto in A (Mozart): Prelude to Der Göttergatte (Lehár); Waltz from Der Opernball (Heuberger); Selection from Das Veilchenmädel (Hellmesberger); Waltz, Aus meinem Leben (Hellmesberger). 6.0, Dialogue: Advertising as a Means of Stimulating Industry. 6.25, Talk: The German Crisis. 6.50, Time, Announcements, Weather and Economic Notes. 7.0, Transmission for all German Stations, relayed from **Leipzig.** 8.5, See **Langenberg.** 10.0, Talk on Flying, by Richard Euringer. 10.30, Time, News, Weather, and Sports Notes. 10.45, Concert from **Leipzig.** 12 **Midnight,** Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.—4.30 p.m.,** Concert of Operetta Music by the Hamburg Philharmonic Orchestra, conducted by Horst Platen. Overture, Light Cavalry (Suppé); Selection from Der Bettelstudent (Millöcker); Kusswalzer (Joh. Strauss); Overture, Poet and Peasant (Suppé). 5.10, Talk. 5.25, Talk: The Development and Importance of Instruments of War. 5.40 (from **Hanover**), Hanoverian Composers—Concert by the Hanover Orchestra and Soloists. Conducter: O. E. von Sosen. The Composers at the Pianoforte. Romance from the Suite for Nine Instruments (Ritzau); Soprano Solo: Erdbeerlied (von Sosen); Baritone Solo: Sonnenuntergang (von Sosen); Fantasia for Pianoforte (Leonhardt); Scherzo for Trumpet and Chamber Orchestra (Gabler); Baritone Solo: Verbotene Liebe (Lehnhoff); Walzerzene (Lehnhoff); Soprano Solo: Wo bin ich gewesen (Elvers); Pianoforte Solo: Rhapsody in B flat minor (Craney); Soprano Solo: Auf der Gartenbank (Deike); Harp Solo: Arabesque (Gillmann); Baritone Solo: Maskenball (Tronnier); Abendstimmung (Gohlisch). 6.30, Report of the N.S.D.A.P. Women's Winter Relief Committee. 6.50, Weather. 7.0, Transmission for all German Stations relayed from **Leipzig.** 8.0, An Oasis of Laughter—a Humorous Programme in Dialect. 10.0, Time, Weather, Announcements, Sports Notes, and Police Report. 10.20, Topical Talk. 10.30, Dance Music from **Berlin (Witzleben).**

HANOVER.—See **Hamburg.**

APRIL 22nd SATURDAY *continued*

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.—11.30 a.m.,** Concert by the Little Orag Orchestra, conducted by Eugen Wilcken: Suite, First Chinese Picture Sheet (Mauss); Waltz, Dreamland (Fucik); Fantasia of Verdi's Opera Music (Rhode); Second Serenade (Heykens); In the Garden of Love (Canuset); Suite, Strausfedern (Morena); Selection from The Dubarry (Millöcker-Mackeben). 1.5, Gramophone Concert. In the interval at 1.20, News. 2.30, Programme arranged by the Post Office, with Gramophone Records. 3.0, Exchange and Market Prices. 3.30 (from **Danzig**), Programme for Children. 4.0, Concert by the Little Station Orchestra, conducted by Eugen Wilcken. 5.50, Talk: Trade schools. 6.0, Programme Events for the Coming Week. 6.15, Market Prices. 6.25, Talk: A Young German talks about Java. 6.50, Weather Forecast. 7.0, Transmission for all German Stations, relayed from **Leipzig.** 8.0, Demonstration by the Society for German Culture, relayed from the **Stadthalle, Königsberg.** 8.30, News. 8.35, Programme from **Hamburg.** 10.0, Weather, News, and Sports Notes, followed by Dance Music from **Berlin (Witzleben).** 12.30 **a.m. (Sunday),** Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.).—12.40 p.m.** till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). 12.40, Concert by the Little V.A.R.A. Orchestra, conducted by P. Duchant. 1.25, Organ Recital by Johan Jong. Soloist: L. Fuld (Songs). 1.55, Orchestral Concert (contd.). 2.55, Variety Music on Gramophone Records. 3.30, Talk. 3.50, Concert by the V.A.R.A. Mandoline Orchestra. 4.30, Concert conducted by P. Tiggers. 5.10, **Talk.** 5.30, Concert by De Notenkrakers, conducted by D. Wins. 6.20, Literary Talk. 6.40, Concert by De Flierefluiters, conducted by J. v. d. Horst. Stempellied (Eysler); We just couldn't say Good-bye (Woods); What more can I ask (Winn); Negro Suite (Weersma); I'll never have to dream again (Jones); Nach Wien (Robrecht). 7.10, Vocal and Instrumental Concert, with Recitations. 8.10, Violin Recital by S. Dwinger. Variations on a Hungarian Theme, Op. 72 (Hubay). 8.25, Concert by a Male Voice Double Quartet, conducted by L. Keerewcer. 8.40, Violin Recital (contd.). Slav Dance in G Minor (Dvorák-Kreisler); Andalusian Romance (Sarasate); Improvisation (Bloch). 8.55, Songs. 9.10, Electioncering Address. 9.40, Concert by the V.A.R.A. Orchestra, conducted by Hugo de Groot. Soloist: J. Lammen (Bass). Overture, Der Wildschütz (Lortzing); Four Songs (Reinitz); March from Aida (Verdi); Frühlingsbotschaft (Fucik); Selection from Nina Rosa (Romberg); Internationale (de Geyter). 10.25, The Village Barber. 10.40, Concert (contd.). Selection from La Fille de Madame Angot (Lecocq); Aria from Lakmé (Delibes); Delirienwalzer (Joh. Strauss); Aria from Hérodiade (Massenet). 11.10, News Bulletin. 11.25, Concert (contd.). Automobile March (Fall); Wild Flowers (Youmans); Parade des Embonpoints (Aubert); The Wedding of the Frogs (Beil); Melody (Kling); Sketches (Petre); Selection from The Maid of the Black Forest (Jessel). 12.10 **a.m. (Sunday),** Light Music on Gramophone Records. 12.40 (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**12.55 p.m.** till Close Down, Programme of the Catholic Radio Society (K.R.O.). 12.55, Concert by the Metselaar Trio. **2.25 to 2.40,** Interval. 2.40, Programme for Young People. 3.10, Programme for Children. 4.40, Variety Music on Gramophone Records. 4.55, Concert by the K.R.O. Orchestra, conducted by M. van 't Wond: Overture, Mignon (Thomas); Waltz (Ivanovici). 5.10, Songs by G.v.d. Herk: Song of the Broken Heart (Moya); Torna a Surriento (de Curtis); Deine Mutter bleibt immer bei dir (Rotter); Selection from The Gipsy Baron (Joh. Strauss). 5.30, Orchestral Concert (contd.): Festjubelmarsch (Blankenburg); Overture, The Crown Diamonds (Aubert); Selection from Carmen (Bizet). 5.55, Esperanto Lesson. 6.10, Orchestral Concert (contd.): Ballet Music from Faust (Gounod); Overture, Maritana (Wallace). 6.40, Songs by G.v.d. Berk: Se di gioja gronda il pianto (Mozart); Song from La Gioconda (Ponchielli); Hosannah (Granier). 7.0, Orchestral Concert (contd.): Suite, Caucasian Sketches (Ippolitov-Ivanov); Two Marches (Holzmann). 7.50, Talk. 8.10, Police Notes. 8.25, Sports Talk. 8.40, Variety Concert by the K.R.O. Boys, conducted by P. Lustenhouwer. J. Mossel (Songs), De Bossche Revellers (Songs), and L. van der Hulst (Recitations). Wir sind jung (Stransky); Irgendwie, irgendwo, irgendwann (Stransky); Waltz, Donausagen (Fucik); Potpourri, Dividenden (Morena); Ich suche Liebe (Buder); Gramophone Records: Kamerad wir sind die Jugend (Stolz); Sailing on the Robert E. Lee (West); Selection from The Flower of Hawaii (Abraham); Recitations; When the Band goes marching by (Sarony); Tränen in der Geige (Rotter); Home (van Steeden); Nobody's Sweetheart, Rio Rita (Adam); I don't want to go to Bed (Gay and Lupino); Old Father Thames (Wallace); Von Rosen ein Ringelein (Pfeuffer); Potpourri, Fahrt ins Blaue (Dostal); Die alte Spieluhr (Reisfeld); Song (Borganov); Joey the Clown (Reeves). 11.10, Light Music on Gramophone Records. 11.40, News Bulletin. 11.45, Popular Music on Gramophone Records 12.40 **a.m. (Sunday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 8 kW.—**8.0 p.m.,** Entertainments' Guide, News, Financial Notes, and Exchange Quotations. 8.10, Film Notes. 8.20, Popular Concert. 9.0, Weather, Racing Results, and News. 9.15, Popular Concert (contd.). 12 **Midnight** till Close Down, Programme in English by the I.B.C., H. K. Hitchcock announcing. 12 **Midnight,** Variety Music: Popular Melodies on a Pianoforte: That's where the South begins; The Crime Sheet; Just once for all time; Dick Turpin's Ride to York; If your Kisses can't hold the Man you love; Granny's Photo Album; Sketch—Breakfast Time; Suite, Americana; When it's sleepy time down South; Only a Bird in a gilded Cage; Live, laugh, and love; Trees; Pianoforte Medley. 12.57, I.B.C. Good-night Melody. 1.0 (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

535 kc/s, 473 metres; 60 kW.—**12 Noon,** Orchestral Concert, conducted by Karl Koethke, relayed from the Tonhalle, Duisburg. 12.50 **p.m.,** Weather, Time and News. 1.0, Concert conducted by Wolf. Soloist: Evelyn Wendorf-Fecht (Contralto). In the interval at 2.0 **p.m.,** Market Prices. 2.35, Popular Music on Gramophone Records. 3.30, Economic Notes and Time. 3.50, Programme for Children. 4.10, English Reading. 4.30, Concert of Chamber Music for Harpsichord, Violin, Viola d'amore and Viola da Gamba. Trio in A Minor for Viola d'amore, Viola da Gamba and Harpsichord (Buxtehude); Chamber Sonata in C for Viola da Gamba and Harpsichord (Handel); Concerto in B Minor for Harpsichord (Telemann); Sonata in D for Viola d'amore and Harpsichord (Stamitz); Trio for Viola d'amore, Viola da Gamba and Harpsichord (Erlebach). 5.50, Talk: Touring in the Rhine District and Westphalia—The Brültal. 6.10, Talk: Handicraft and the Choice of a Profession. 6.30, Talk: The German Woman in Transylvania. 6.45, Weather, Time, Economic Notes and Sports Results. 7.0, Transmission for all German Stations, relayed from **Leipzig.** 8.0, News. 8.5, Variety Concert by the Small Station Orchestra, Harry Cobler, Franz Exner, Hans Jonen, Fritz Kuhl, Robert Nonnenbruch, Alfred Wagner and others. 10.5, News and Sports Notes. 10.45, Serenade, relayed from **Munich.** 12 **Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—7.0 p.m.,** Transmission for all German Stations: Wagner Concert by the Leipzig Symphony Orchestra, conducted by Dr. Ludwig Neubeck; Soloist, Elsa Wieber (Soprano): Overture, The Flying Dutchman; Bacchanale from Tannhäuser; Prelude to Tristan und Isolde; Songs with Orchestral Accompaniment: (a) Im Treibhaus, (b) Träume, (c) Schmerzen; Prelude to The Mastersingers. 8.0, Topical Talk. 8.15, Die Geschichte von den mehreren Wehmüllern—Radio Play after Clemens Bretano (G. von Kaulla). 9.0, Concert of Light Music by the Dresden Philharmonic Orchestra, conducted by Hilmar Weber. 10.5, News Bulletin. 10.20 (approx.), Concert by the Dresden Philharmonic Orchestra, conducted by Hilmar Weber: Overture, Rübezahl (Weber); Don Quixote Suite (Telemann); Selection from The Taming of the Shrew (Goetz); Swedish Dances (Bruch); Waltz from Das fatale Ei (Schütt); Selection from Eva (Lehár). 12 **Midnight** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**8.0 p.m.,** Concert by a Mandoline Sextet. 9.0, Quintet Concert. 10.0, Time and News. 10.15, Gramophone Dance Music.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**7.0 to 9.0 p.m.,** Programme for Listeners in the Canary Islands, Guinea and America. 7.0, Concert of Light Music. 8.15, Talk. 8.30, Light Music. 9.0 to 11.30, No Transmission. 11.30, Programme, relayed from **Madrid (EAJ7).** In the interval, Radio Chronicle. 1.0 **a.m. (Sunday),** Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Radio Journal, Medical Talk, and Request Gramophone Concert. 9.15, News Bulletin. **9.30 to 10.0,** Interval. 10.0, Linguaphone English Lesson. 10.30, Chimes and Time Signal. 10.35 (approx.), The Barber of Seville—Opera (Rossini) on Gramophone Records. 12.45 **a.m. (Sunday),** News Bulletin. 1.0, Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,367 kc/s, 263.8 metres; 11 kW.—**7.25 p.m.,** See **Prague.** 8.0, See **Bratislava.** 10.0, See **Prague.** 10.15, Concert of Light Music by the Station Orchestra, conducted by J. Plichta. 11.30 (approx.), Close Down

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**6.30 p.m.,** Dance Music or Concert, relayed from the Radio Theatre or from the Conservatoire. 8.0, Talk in German: Marx and Lenin. 9.0, Talk in French. 9.30, Programme Announcements 9.55, Announcements. 10.5, Talk in Spanish.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg and Kaiserslautern, 535 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.—12 Noon,** Gramophone Concert of Classical Music. 12.45 **p.m.,** Orchestral Concert, conducted by Erich Kloss. 2.0, Time, Weather, Programme Announcements, and Exchange, followed by Programme arranged by the Post Office. 2.25 (from **Nürnberg**), Variety Programme. 3.10, Programme for Children. 3.25 (from **Nürnberg**), Talk: Shall I put my Son into Business? 3.45, Weather and Agricultural Notes 4.3, Labour Market Report. 4.10, Soprano Recital by Hilde von Alpenburg-Eberbach: Two Songs (Schubert): (a) by Ganymed, (b) Seligkeit; Eight Songs (Hans Pfitzner—Words Gottfried Keller): (a) Mir glänzen die Augen, (b) Ich fürcht nit Gespenster, (c) Du milchjunger Knabe, (d) Wandl' ich in dem Morgentau, (e) Singt mein Schatz wie ein Fink, (f) Röschen, biss den Apfel an, (g) Tretet ein, hoher Krieger, (h) Wie glänzt der helle Mond. 4.35 (from **Nürnberg**), Mother Love—an Animal Story (Lothar von Reppert). 4.50 (from **Nürnberg**), Orchestral Concert, conducted by Karl Demmer. Overture, Euryanthe (Weber); Second Movement from the First Symphony (Beethoven); Item to be announced; Waltz, Tales from the Vienna Woods (Joh. Strauss); March, The Gladiators' Farewell (Blankenburg). 6.0, Programme for Young People. 6.45, Wireless Hints. 7.0, Transmission for all German Stations, relayed from **Leipzig.** 8.0, Concert by the Small Station Orchestra, conducted by Karl List. Soloists: Hans Schindler and Lilly Preisig (Songs); March, Der alte Dessauer; Overture, The Gipsy Baron (Joh. Strauss); Selection from The Merry Widow (Lehar); Waltz, Gold and Silver (Lehar); Perpetuum mobile (Gungl); Recitations; Waltz, Wiener Bonbons (Joh. Strauss); March Potpourri, Jung Deutschland; Patriotic Songs by Sepp Summer; Dance Music 10.20, Time, Weather, News, and Sports Notes. 10.45, Concert from **Leipzig.** 12 **Midnight** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 355.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres. —4.15 p.m.,** Variety Music on Gramophone Records. 5.15, Programme for Children. 6.15, Programme of Norwegian Songs and Hardanger Fiddle Music. 6.45, Talk on Economics. 7.0, Announcements, Weather and News. 7.30, Talk on Technocracy. 8.0, Time Signal. 8.1, Concert of Popular Music and Dance Music by the Station Orchestra, conducted by Hugo Kramm. 9.10, A Sketch. 9.40, Weather and News. 10.15, Song Recital and the Week's Review. 10.45, Dance Music on Gramophone Records. 12 **Midnight** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 8 kW.—**5.30 p.m.,** Light Music on Gramophone Records. **6.0 to 6.30,** Programme for Children. 8.0, Dopolavoro Announcements, Tourist Talk, Agricultural Notes, and Giornale Radio. 8.20, Sports Notes. 8.25, Light Music on Gramophone Records. 8.30 (in an interval), Time Signal and Announcements. 8.45, Frederica—Operetta in Three Acts (Lehár). In the intervals, Book Review and Announcements, After the Operetta, News Bulletin.

APRIL 22nd **SATURDAY** *continued*

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 15 kW. Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and G-dot Signals).—**6.45 p.m.,** Musical Programme. **7.0,** Le Journal Parlé. **8.20,** Weather Report. **8.30,** Pianoforte Recital by Marie Antoinette Pradier. Part I. Rameau Programme: Gavotte variée; Les tendres plaintes; Le rappel des oiseaux; L'Egyptienne; L'Agaçante; Le Tambourin. Part II. Couperin Programme: La Bersan; Les Tricoteuses; Les petits moulins à vent; Passacaille; Tic-Toc-Choc. **9.0,** Concert by the Firmin Touche Quartet: Quartet in B Flat, Op. 18 (Beethoven); String Quartet in D Minor, Death and the Maiden (Schubert). **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW. **6.45 p.m.,** Journal Parlé. **7.0,** Gramophone Concert of Popular Music. **7.20,** Answers to Correspondents. **7.35,** Gramophone Concert (contd.). **8.0,** Talk: The Event of the Week. **8.5,** Theatre Notes. **8.15,** Interval. **8.30,** Concert of Chamber Music. Germaine Corney (Songs), Achille Grass (Clarinet) and Mme. Stiévenard (Pianoforte). Sonata for Clarinet and Pianoforte (Brahms); Songs (Fraggi); Romance sans paroles, for Clarinet and Pianoforte (Jeanjean). **9.0,** Interval. **9.10,** Dance Music by the Sonora Band, conducted by Fred Hoffmann. **11.0,** News. **11.5,** Dance Music on Gramophone Records. **12 Midnight** (approx.), Close Down.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.20,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon to 2.0 p.m.,** Orchestral Concert. Ballet Music from Alceste (Gluck); Ballet Music from Faust (Gounod); Air de Ballet (Chabrier); Ballet Music from Hérodiade (Massenet); Polonaise from Struensee (Meyerbeer); Ballet Music from: (a) Coppélia (Delibes) and (b) Madame Chrysanthème (Messager); Divertissement from Marika (A. Georges); Selection from La Fete chez Thérèse (Hahn); Ballet Suite (Infante). In the intervals at **1.0,** Exchange, News and Weather, and at **1.30,** Exchange. **2.0,** Exchange and Announcements. Programme for Children. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.30,** Orchestral Concert Jumbo (Paradis); Echo in the Valley (Woods); Mi rancion (Tonga Ghirlanda); Princess Flirt (d'Arbor); Alma española (Bordetas); Pictures (Barlee); La vraie samba (de Farias); Ravissement (Leduc). **7.0,** Scientific Talk. **7.20,** Orchestral Concert. Tango from Countess Maritza (Kálmán); Les pompons rouges (Mercier); Chouquette (Le Cun); Quand on est vraiment amoureux (Moretti); Dans la plantation (Pouget); Islam Melody (Poussigue); Groggy (Saint-Servan); Melody (Joh. Strauss); La Marche des bananes (Scotto). **7.45,** Review of the Latin Press. **8.0,** Music of the Antilles Concert by the Mariano Orchestra, Mlle. Maiotte Almaby and M. Waddy. **8.30,** News, Weather and Sports Notes. **8.40,** Review by Jean Rieux. **8.45,** Goodwill Week—Address, Music and Recitations. In the interval at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA). 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.—10.0 p.m.,** Dance Master, from **New York. 10.30,** Concert Favourites, from **New York. 11.0,** The United States Government in Pittsburgh. **11.15,** Hotel Sherman Orchestra, from **New York. 11.30,** Behind the Law—Tales of the Pennsylvania State Police. **11.45,** Little Orphan Annie, from **New York. 12 Midnight,** Hotel Lexington Orchestra, from **New York. 12.15 a.m. (Sunday),** Time Signal. **12.16,** Weather Report. **12.17,** Teaberry Sport Review. **12.22,** Press News Reeler. **12.29,** Temperature Report. **12.30,** A Recreo by Bill and Alex of the Downtown Y.M.C.A. **12.45,** Smith Ballew and his Orchestra. **12.59,** Time Signal. **1.0,** Homey and Old Fashioned Quartet. **1.15,** Adventures of Aunt Lulu—KDKA Players. **1.30,** Atkinson String Ensemble. **1.45 to 4.30, New York** Relay. **1.45,** Townsend Murder Mystery. **2.0,** American Taxpayers' League. **2.15,** The Boston Symphony Orchestra. **4.15,** Sabon Singers. **4.30,** Smith Ballew and his Orchestra. **4.59,** Time Signal. **5.1,** Teaberry Sport Review. **5.11,** Temperature Report. **5.12,** Weather Report. **5.13,** KDKA Artist Bulletin. **5.15,** Press Last Minute News Flashes. **5.20,** Messages to Methodist Missionaries. **6.20,** Messages to Dwellers of the Far North.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** See **Bratislava. 5.10,** Talk on Salesmanship. **5.20,** German and Czech Lesson. **5.50,** Variety Music on Gramophone Records. **6.5,** Agricultural Report. **6.15,** Talk for Workers. **6.25,** German News. **6.30,** German Transmission. Talk, with Recitations: New Lyrics, from the Sudetic Mountains. **7.0,** Chimes and News. **7.10,** Talk: Tuberculosis and its Cure. **7.25,** Talk: The Development of the Pianoforte Sonata. **7.35,** Recital of Benda's Sonatas, played by Jan Herman: Sonata in A Minor; Andante quasi allegretto and Tempo di minuetto, from the Sonatina in F; Allegretto giocoso, from the Sonatina in D; Allegretto and Minuet, from the Sonatina in E; Allegro non troppo, Andantino and Allegro from the Sonata in E Flat. **8.0,** See **Bratislava.** In the interval at **9.0,** Time Signal. **10.0,** Time and News. **10.15,** See **Moravská-Ostrava. 11.30** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.: **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.—6.0 p.m** (from **Geneva**), Talk. **6.30** (from **Lausanne**), Talk: What shall my son be? **7.0** (from **Lausanne**), Weather, News and Announcements. **7.30** (from **Lausanne**), Talk: The Cinema. **7.45** (from **Lausanne**), Talk on Television. **8.0** (from **Lausanne**), 'Cello Recital by Paul Berger. **8.20** (from **Lausanne**), A Storm on the Coast—One Act Play (Bindrean). **8.40** (from **Lausanne**), Song Recital. **9.0,** Concert by the Radio-Suisse Romande Orchestra. **10.0,** News and Weather. **10.10** (from **Geneva**), Dance Music. **11.30** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.—7.45 a.m.,** Gymnastics. **8.15 to 8.30,** Giornale Radio and Announcements. **12.30 p.m.,** Weather and Light Music on Gramophone Records. **1.2 to 2.15,** Orchestral Concert. In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.30,** Programme for Children. **4.45,** Report of the Royal Geographical Society and Giornale Radio. **5.5,** Exchange and Announcements. **5.15,** Reading. **5.30 to 6.15,** Orchestral Concert. Overture, The Secret Marriage (Cimarosa); Lontano (Malatesta); Scherzo (Brogi); Notte lunare (Solazzo); Selection from L'Amico Fritz (Mascagni); Pianoforte Solo, Scherzino (Paolantonio); Pianoforte Solo, Giga (Serrao); Adagio (Lacchini); La notte sahariana (Santoliquido); Caprice (Albeniz); Papagei (Romner). **7.0 (Naples),** Shipping and Sports Notes. **7.10,** Atmospheric Signals. **7.20,** Giornale Radio and Agricultural Notes. **8.0,** Time, Announcements, and Light Music on Gramophone Records. **8.15,** Song Recital by Maria Teresa Barboni (Soprano). **8.30,** Sports Notes and Tourist Report. **8.45,** Relay from a Theatre. In the intervals, Review of New Books, Announcements, and News.

SALZBURG.—See **Vienna.**

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.—6.30 p.m.** (from **Basle**), Talk on Greece—Mount Olympus. **7.0** (from **Zürich**), Chimes from the Zürich Churches, followed by Time, Weather and Market Prices. **7.15** (from **Basle**), Talk: International Efforts to combat the World Crisis by raising the Price of Wheat. **7.45** (from **Basle**), Bunter Abend. **9.30,** Weather and News. **9.30,** Weather and News. **9.40** (from **Basle**), Talk with Gramophone illustrations: Music from Many Lands. **10.5** (from **Basle**), Gramophone Dance Music. **11.0** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Gotebörg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s,, 542 metres.—4.0 p.m.,** Concert by the Gunnar Andersson String Orchestra, relayed from **Malmö, 1,301 kc/s, 231 metres:** Intag i sommarhagen (Petersson-Berger); Waltz from Gipsy Love (Lehar); Japanese Serenade (Bonelli); Swedish Rhapsody (Atterberg); Canzonetta (d'Ambrosio); Guitare (Lalo); Selection from Waltzes from Vienna (Bittner-Korngold); German Dance (Mozart); Foxtrot, Here lies Love (Reinger). **5.5** (from **Sundsvall**), Programme for Children. **5.30,** Light Music on Gramophone Records. **6.30,** The Practical Corner, relayed from **Malmo, 1,301 kc/s, 231 metres. 6.45,** Light Music by a Mandoline Orchestra. **7.15,** Weather and News. **7.30,** Talk on the Swedish Landscape. **8.0** (from **Sundsvall**), Old Dance Music. **8.45,** Provincial Programme—Grönköping. **9.45,** Weather and News. **10.0,** Dance Music by the Gösta Jonsson Band, relayed from the Savoy. **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Gramophone Concert. **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Missa solemnis in D (Beethoven), on Gramophone Records. **3.0 to 3.45,** Interval. **3.45,** Talk in French on Spanish Songs. **4.0,** Orchestral Concert, conducted by Maurice de Villers; Soloists, M. Grégoire (Violin), Mme. Manjean (Songs), M. Jude (Flute) and Mlle. Kaufmann (Harp); Part I: Lalo Music for the Anniversary of his Death: Spanish Symphony for Violin and Orchestra; Orchestral Suite, Namouna; Part II: Jean Cras Music: Entr'acte from Polyphemus; Carols: (a) Plainte d'Adam, (b) La mauvaise Auberge, (c) L'Adoration des Bergers; Suite for Flute and Harp; Songs; Symphonic Poem, Ames d'enfants. **6.0,** Legal Talk in German. **6.15,** French Elocution Lesson. **6.30,** Gramophone Concert for the Anniversary of Lalo's Death. **7.15,** Agricultural Talk in German. **7.30,** Time and News. **7.45,** L'heure espagnole (Ravel), on Gramophone Records. **8.15,** Press Review in German. **8.30,** Choral Concert of Sacred Music by the Chanteurs Palestriniens, relayed from **Marseilles, 950 kc/s, 315 metres.** In the interval, Press Review in French. **10.30,** Dance Music from the Savoy. **12 Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.: and **Freiburg, 527 kc/s, 570 metres.—1.0 p.m.,** Schubert Song Recital with Organ Accompaniment, relayed from the Ufa Palast. Hans Hotels (Baritone) and Wilhelms Lochs (Organ). **1.30,** Concert by the Pforzheim Symphony Orchestra, relayed from **Pforzheim. 2.30,** Time, News, Weather and Programme Announcements. **2.45,** Anecdotes and Humorous Stories. **3.10,** Mouth Organ Recital by Theo Lachenmann. **3.30,** See **Frankfurt. 4.30** (from **Freiburg**), Concert by the Freiburg Zither Quartet. **5.0** (from **Mannheim**), Choral Concert. **6.15,** Time and Sports Notes. **6.35,** Discussion on the Reliability Trial of the A.D.A.C. through Württemberg on April 23, 1933. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Leipzig. 8.0,** Programme by the German Theatrical Society, relayed from the Municipal Theatre, **Freiburg.** Introductory Talk on the German Theatre. Overture, Euryanthe (Weber); Scene from William Tell (Schiller); Address by Captain Werber; Selection from Act I of the Valkyries (Wagner). **9.15,** Liebeslatein (The Language of Love)—Musical Comedy (Wilberg-Böttcher), arranged for Radio by Otto Crack. **10.20,** Time, News and Programme Announcements. **10.45,** Concert from **Leipzig. 12 Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**6.15 p.m.,** Military Music. **6.30,** Instrumental Solos. **6.45,** Orchestral Music. **7.0,** Arias from Operas: J'ai six moutons and Dorval jeune ingénue from Sophie Arnould (Pierné); La Rêve from Manon (Massenet); Aria from La Bohème (Puccini). **7.15,** News, Racing Results and Market Prices. **7.25,** Local News. **7.30,** Accordion Solos. **7.45,** Light Music. **8.0,** Instrumental Music: Un peu d'amour (Silésu); Trio (Goldmark); Vienna City of my Dreams (Sieczinsky). **8.15,** Arias from Operas: Aria from The Magic Flute (Mozart); Prayer from William Tell (Rossini); Aria from Il Trovatore (Verdi). **8.30,** Viennese Music. **9.0,** Extracts from I Pagliacci—Opera (Leoncavallo), followed by Orchestral Music. **10.0,** Accordion Solos. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Request Concert: Ballet Music from Faust (Gounod); Serenata (Toselli); Grail Narrative from Lohengrin (Wagner); Cavatina (Raff); Death of Thais from Thaïs (Massenet). **11.30 to 12 Midnight,** Programme in English by the I.B.C. W. Brown-Constable announcing. **11.30,** Variety Music; Selection from Wonder Bar (Katscher); Little Dolly Daydream (Stuart); Voice in the Old Village Choir (Woods); A Girl Friend of a Boy Friend; The Buggins' Picnic, by Mabel Constanduros; Goodnight Sweetheart (Noble); Whoozy Anna. **11.57,** I.B.C. Goodnight Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Sunday),** Orchestral Music: Pavane pour une Infante défunte (Ravel); Selection from The Secret Marriage (Cimarosa); Die Moldau (Smetana); Sphärenklänge (Jos. Strauss). **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.10 p.m.** till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.—5.10 to 6.10 p.m.,** Gramophone Concert of Popular Music. **6.35,** Giornale Radio, Announcements, Agricultural, and Dopolavoro Notes. **7.0,** Time, Tourist Report, and Gramophone Records of Variety Music. In an interval from **7.20 to 7.45,** Giornale Radio. **8.0,** Announcements, Giornale Radio, Weather, and Gramophone Records of Light Music. **8.30,** Talk: Events and Problems. **8.45,** Rompicollo—Operetta in Three Acts (Pietri). In the intervals: Review of New Books, Announcements, and Giornale Radio. After the Programme, Dance Music Relay.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and **5,969 kc/s, 50.26 metres (Evening);** 10 kW. **—11.0 to 11.15 a.m.,** Religious Announcements in Various Languages. **8.0 to 8.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.—4.0 p.m.,** Italian Lesson. **4.25,** Reading (Josef Weiland). **4.55,** Mandoline Concert. **5.30,** Talk: Literature in the Coffee Cup. **6.5,** Popular Music on Gramophone Records. **6.50,** Monthly Review of World Events. **7.15,** The Maxim. **7.20,** Time, Weather, Sports Notes, and Programme Announcements. **7.30,** Talk: Austria and her Music. **7.40,** Concert by United Roman Catholic Church Choirs, relayed from St. Stephen's Cathedral: Toccata for Organ (Walter); Three Old Sacred Songs (arr. Max Hanger): (a) Christ ist erstanden, (b) Mitten im Leben sind wir im Tode, (c) Nun bitten wir den heil'gen Geist; Ave verum (Mozart); Omnes de Saba venient (Gallus); Ave Maria (Bruckner); Tenebrae factae sunt (Wöss); Address by the Cardinal Archbishop of Vienna; Psalm No. 23 (Bruckner). **8.55,** Orchestral Concert of Austrian Operetta Music. Soloist: Hans Skriwanek (Tenor). **10.25,** News and Weather. **10.35,** Orchestral Concert of Modern Austrian Music.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Light Music on Gramophone Records. **1.20,** Weather Forecast. **1.25 to 3.10,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.35,** Answers to Correspondents on Military Questions. **3.35,** Programme for Children. **4.0,** Light Music on Gramophone Records. **4.30,** Talk: The Rebirth of the Polish State. **4.40,** Talk: Education in the Time of the Ancient Greeks and Romans. **5.0,** Programme for Invalids, relayed from **Lwow, 788 kc/s (381 metres). 5.20,** Popular Music on Gramophone Records. **5.40,** Topical Talk. **5.55,** Programme Announcements. **6.0,** Educational Talk. **6.20,** News. **6.25,** Light Music, relayed from the Café Italia. **7.0,** Miscellaneous Items. **7.20,** Talk on Gardening. **7.30,** Topical Talk. **7.45,** Radio Journal. **8.0,** Strauss Concert by the Station Orchestra, conducted by S. Nawrot. Soloists: Mme. Karwowska (Soprano) and J. Poplawsky (Tenor): Egyptian March (Johann Strauss); Waltz, Mein Lebenslauf ist Lieb und Lust (Josef Strauss); Air from Act III of Die Fledermaus (Joh. Strauss); Overture, Der lustige Krieg (Joh. Strauss); Air and Duet from A Night in Venice (Joh. Strauss); Pizzicato Polka (Jos. Strauss); Waltz, Nur für Natur (Joh. Strauss); Duet from Die Teresina (Oscar Straus); Duet from Act II of Eine Nacht in Venedig (Johann Strauss); Entr'acte from The Chocolate Soldier (Oscar Straus); Song from Die Teresina (Oscar Straus); Melody (Joh. Strauss); Polka from Die Fledermaus (Joh. Strauss); Serenade and Waltz from A Night in Venice (Joh. Strauss); Overture, Prinz Methusalem (Joh. Strauss); Songs and Czardas from Die Fledermaus (Joh. Strauss); New Pizzicato Polka (Joh. Strauss); Overture, A Waltz Dream (Oscar Straus); Gavotte (Joh. Strauss); Radetzky March (Joh. Strauss). In the interval, Sports Notes and Radio Journal. **10.5,** Chopin Pianoforte Recital by Paul Lewiecki; Sonata in B Flat Minor, Op. 35; Nocturne in G Minor, Op. 37; Ballade in G Minor. **10.40,** Talk. **10.55,** Aviation Weather Report and Police Notes. **11.0,** Dance Music, relayed from the Bodega. In the interval, News for Members of the Polish Polar Expedition.

ZURICH.—See **Schweizerischer Landessender.**

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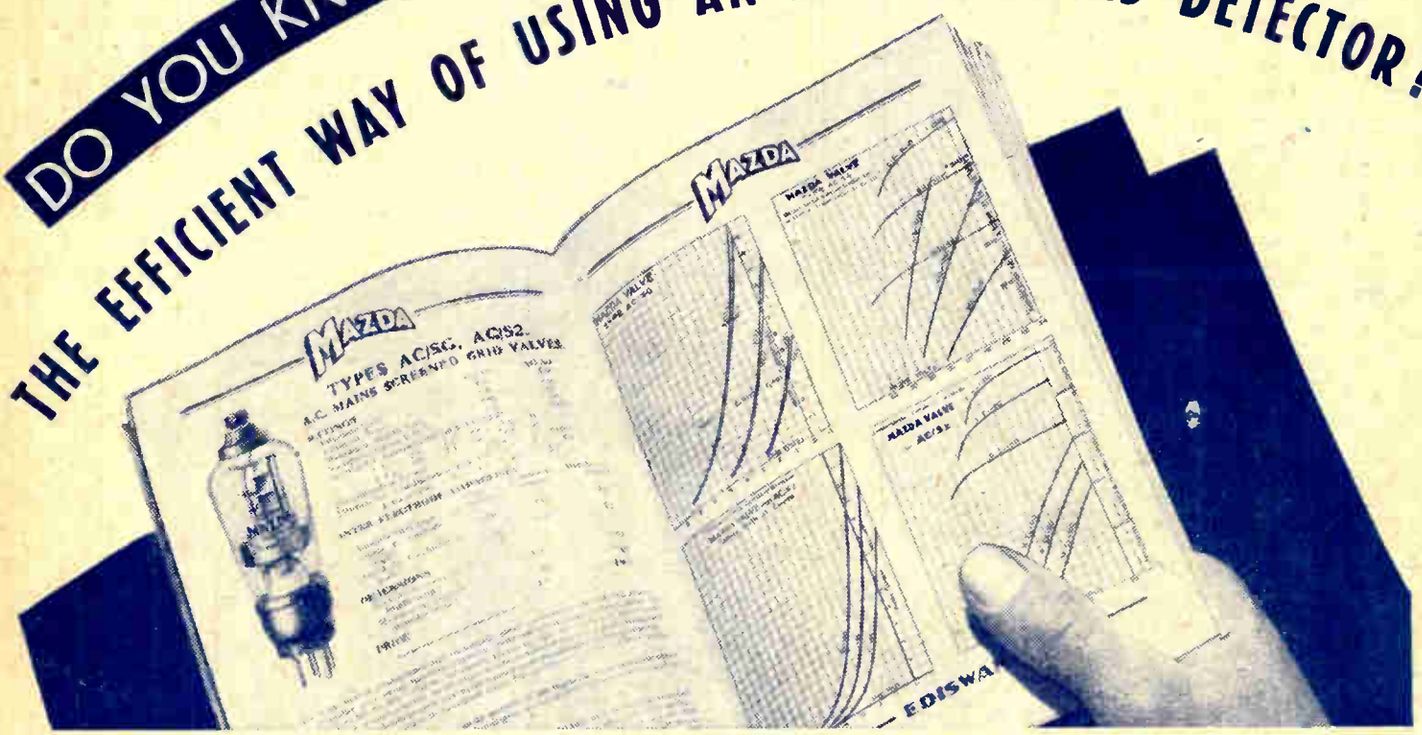

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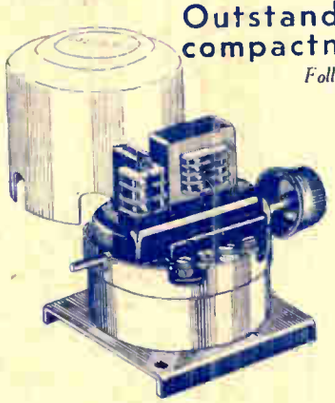

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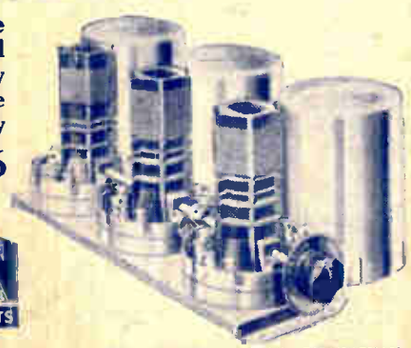

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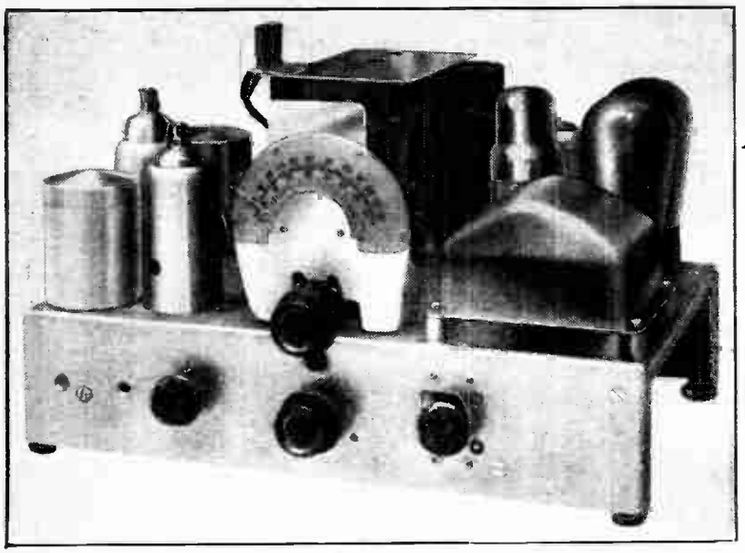

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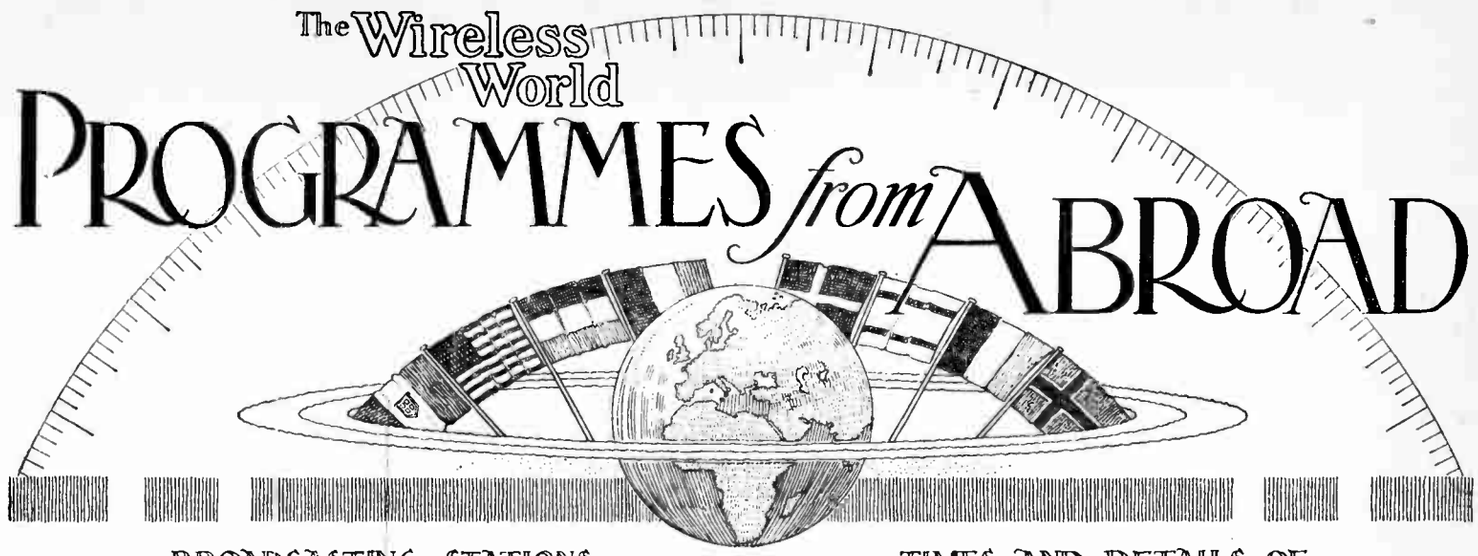


BROADCASTING STATIONS ARRANGED IN ORDER OF WAVELENGTH

TIMES AND DETAILS OF FULL WEEK'S FOREIGN TRANSMISSIONS

Metres.	Kc.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania)	
1875	160	8.5	Huizen (Holland)	
1796	167	40	Lahti (Finland)	
1725	174	75	Radio Paris, C.F.R.	
1635	183.5	60	Zeesen (Königswusterhausen) (Germany). (*S. W. Stn. DJH on 31.38 m.*)	
1554.4	193	30	Daventry National	
1538	195	7	Ankara (Angora) (Turkey)	
1481	202.5	100	Moscow, RV1 (Old Komintern) (Russia)	
1446	207.5	13	Eiffel Tower, FL, Paris	
1412	212.5	120	Warsaw 1 (Poland)	
1380	217.5	100	Novosibirsk, RV6 (Russia)	
1354.4	221.5	30	Motala (Sweden). (*Relays Stockholm*)	
1304	230	100	Moscow, WZSPS (Trade Union) (Russia)	
1275	235	0.5	Tunis-Kasbah (Tunisia)	
1230	244	0.6	Boden (Sweden). (*Relays Stockholm*)	
1200	250	5	Stamboul (Turkey)	
1200	250	21	Reykjavik (Iceland)	
1190	252	200	Luxembourg (*Testing*)	
1170	256	25	Tashkent, RV11 (Russia)	
1154	260	7.5	Kalundborg (Denmark). (*Relays Copenhagen*)	
1117	268.5	40	Moscow, Popoff RV58 (Russia)	
1083	277	60	Oslo (Norway)	
1071	280	35	Tiflis, RV7 (Russia)	
1035	290	36	Kiev, RV9 (Russia)	
1000	300	100	Moscow (Russia) (*S. W. Stn. on 50 m.*)	
938	320	20	Kharkov, RV4 (Russia)	
857	350	100	Leningrad (Russia)	
840	357	18.5	Budapest (Hungary)	
825	363.6	50	Sverdlovsk, RV5 (Russia)	
770	389	0.6	Ostersund (Sweden). (*Relays Stockholm*)	
760	395	1.3	Geneva (Switzerland). (*Relays Sottens*)	
720	416.6	20	Moscow, RV2 (Experimental) (Russia)	
690	434.6	1.5	Oulu (Uleaborg) (Finland)	
680	441.2	0.6	Lausanne (Switzerland). (*Relays Sottens*)	
574.7	522	0.7	Hamar (Norway). (*Relays Oslo*)	
574.7	522	7	Ljubljana (Yugoslavia)	
569	527	0.25	Freiburg-im-Breisgau (Germany). (*Relay Stn.*)	
568.1	528	2	Grenoble (France)	
566	530	0.25	Hanover (Germany). (*Relays Hamburg*)	
563	533	16	Wilno (Poland). (*Relay Station*)	
560	536	0.25	Augsburg (Germany). (*Relays Munich*)	
560	536	1.5	Kaiserslauten (Germany). (*Relays Munich*)	
558.6	537	1	Tampere (Finland). (*Relays Helsinki*)	
550	545	18.5	Budapest No. 1 Lakihegy (Hungary)	
542	554	10	Sundsvall (Sweden). (*Relays Stockholm*)	
537.6	558	3	Palermo (Italy)	
533	563	60	Munich (Germany)	
525	571	15	Riga (Latvia)	
517	580	15	Vienna (Rosenhügen) (Austria)	
509	589	15	Brussels No. 1, Velthem (Belgium). (*In French*)	
500.8	599	20	Florence, IFI (Italy). (*Relays Turin*)	
495.8	605	1.2	Trondheim (Norway)	
488.6	614	120	Prague, No. 1 (Czechoslovakia)	
480	625	50	North Regional (Manchester)	
472.4	635	60	Langenberg (Germany)	
465.8	644	1.5	Lyons la Doua, PTT (France)	
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland).	
453.2	662		San Sebastian, EAJ8 (0.6 kW.); Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (*relays Heilsberg*); Klagenfurt (0.5 kW.) (Austria) (*relays Vienna*); Porsgrund (0.7 kW.) (*relays Oslo*), Tromsö (0.1 kW.) Bodö (0.5 kW.) (Norway); Upsala (0.15 kW.) (Sweden) (*relays Stockholm*).	
453.2	662	0.25	Agen (France)	
453.2	662	7	Milan (*Experimental Relays Rome*)	
450.3	666	20	Madona (Latvia)	
447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.); Bjuknn (0.15 kW.), Notodden (0.08 kW.) (Norway) (*relays Oslo*).	
441.2	680	50	Rome, IRO. (*S.-W. Station, 2 RO on 25.4 m.*)	
435.4	689	55	Stockholm, SASA (Sweden)	
430.4	697	2.5	Belgrade (Yugoslavia)	
424.3	707	2	Madrid, EAJ7 (Union Radio). (*After 7.0 p.m.*)	
424.3	707	100	Moscow, Imini Stalina (Russia)	
419.5	715	1.5	Berlin, No. 1, Witzleben (Germany)	
416.4	720.5	5	Rabat (Morocco)	
413	725	60	Athlone (Irish Free State)	
408.7	734	16	Katowitz (Poland)	
403.8	743	25	Sottens (Radio Suisse Romande) (*Switzerland*)	
398.9	752	25	Midland Regional	
394.2	761	12	Bucharest (Roumania)	
389.6	770	120	Leipzig (Germany)	
385.1	779	8	Toulouse (Radiophonie du Midi) (France)	
385.1	779	10	Stalino, RV26 (Russia)	
381	788	16	Lwow (Lemburg) (Poland)	
376.4	797	50	Scottish Regional (Falkirk)	
372.2	806	1.5	Hamburg (Germany)	
370.1	810.5	0.8	Radio, LL, Paris	
368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (*relays Lahti*); Kharkov, RV20 (10 kW.) (Russia).	
365.8	821	0.7	Fredriksstad (Norway). (*Relays Oslo*)	
364.1	824	1	Bergen (Norway)	
363.6	825	13	Algiers (Algeria)	
360.6	832	60	Mühlacker (Stuttgart) (Germany)	
355.9	843	50	London Regional (Brookmans Park)	
352.1	852	7	Graz (Austria). (*Relays Vienna*)	
348.8	860	7.6	Barcelona, EAJ1 (Spain)	
348.8	860	10	Leningrad, RV70 (Russia)	
345.2	869	11.5	Strasbourg, PTT (France)	
341.7	878	35	Brno (Brunn) (Czechoslovakia)	
338.2	887	15	Brussels II, Velthem (Belgium). (*In Flemish*)	
335	896	5	Cadiz (Spain)	
334.4	897	1.9	Poznan (Poland)	
331.5	905	50	Milan (Italy). (*Relays Turin*)	
328.2	914	60	Poste Parisien (France)	
325	923	60	Breslau (Germany)	
321.9	932	10	Göteborg (Sweden). (*Relays Stockholm*)	
318.8	941	0.25	Dresden (Germany). (*Relays Leipzig*)	
318.8	941	1.5	Naples, INA (Italy). (*Relays Rome*)	
315.8	950	1.6	Marseilles, PTT (France)	
312.8	959	1.7	Cracow (Poland)	
312.8	959	10	Genoa, IGE (Italy). (*Relays Turin*)	
309.9	968	1	Cardiff	
307	977	0.7	Radio Vitus (Paris). (*S.-W. Stn. on 43.75 m.*)	
307	977	0.75	Zagreb (Yugoslavia)	
304	986	13	Bordeaux Lafayette, PTT (France)	
301.5	995	50	North National (Manchester)	
298.8	1004	11	Tallinn (Esthonia)	
296.1	1013	20	Hilversum (Holland). (7 *kW. before* 4.40 *p.m.*) (*Exchanges wavelengths with Hilversum every three months.*)	
293.5	1022	0.7	Limoges, PTT (France)	
293.5	1022	2.6	Kosice (Czechoslovakia)	
291	1031	10	Viipuri (Viborg) (Finland). (*Relays Helsinki*)	
283.3	1040	50	Scottish National (Falkirk)	
288.3	1040	1	Bournemouth (*Relay Station*)	

BROADCASTING STATIONS ABROAD (In Order of Wavelength).

Metres.	Kc.	kW.	Station.	Tuning Positions.
285.1	1052	0.7	Lyons (Radio-Lyon) (France)	
283.6	1058	0.5	German Relays (Berlin, Magdeburg, Stettin)	
283.6	1058	0.5	Innsbruck (Austria). (*Relays Vienna*)	
282.2	1063	2	Lisbon CT 1AA (Portugal). (*Short-wave Station on* 31.25 *m.*)	
281.2	1067	0.75	Copenhagen (Denmark)	
278.8	1076	13.5	Bratislava (Czechoslovakia)	
276.5	1085	60	Heilsberg (Germany)	
273.7	1096	7	Turin (Italy)	
271.5	1105	1.3	Rennes, PTT (France)	
269.8	1112	20	Bari (Italy)	
269.8	1112	0.25	Bremen (Germany). (*Relays Hamburg*)	
267.6	1121	1.5	Valencia (Spain)	
265.8	1128.5	1.3	Lille, PTT (France)	
263.8	1137	11.2	Moravska Ostrava (Czechoslovakia)	
261.5	1147	50	London National (Brookmans Park)	
259.3	1157	17	Frankfurt-a.M. (Germany)	
259.3	1157	2.3	Trier (Germany). (*Relays Frankfurt*)	
257.1	1167	10	Hörby (Sweden). (*Relays Stockholm*)	
255.1	1176	0.7	Toulouse, PTT (France)	
253.1	1185	5	Gleiwitz (Germany). (*Relays Breslau*)	
252	1193	1	Barcelona, EAJ15 (Assoc. Nat.) (Spain)	
249.6	1202	0.8	Juan-les-Pins, Nice (France)	
247.7	1211	10	Trieste (Italy). (*Relays Turin*)	
245.9	1220	0.12	Swansea	
245.9	1220		Berne (0.5kW.) (Switzerland)(*relays Beromünster*); Eskilstuna (0.2 kW.), Säffle (0.4 kW.) (Sweden) (*relays Stockholm*); Cassel (0.25 kW.) (Germany) (*relays Frankfurt*); Linz (0.5 kW.) (Austria) (*relays Vienna*); Pietarsaari (0.5 kW.), Turku (Abo) (0.5 kW.) (Finland) (*relays Helsinki*); Schaerbeek (0.1 kW.) (Belgium).	
244.1	1229	0.5	Basle (Switzerland). (*Relays Beromünster*)	
242.3	1238	1	Belfast (N. Ireland)	
240.6	1247	0.5	Stavanger (Norway)	
238.9	1256	2	Nürnberg (Germany). (*Relays Munich*)	
238	1260	1	Nimes (France)	
237.2	1265	3	Bordeaux, Sud-Ouest (France)	
235.5	1274	0.5	Kristiansand (Norway)	
235	1283	1.65	Lodz (Poland). (*Relay Station*)	
232.2	1292	0.25	Kiel (Germany). (*Relays Hamburg*)	
230.6	1301	—	Swedish Relay Stations. (Malmö, Norrköping, Karlstad and Trollhätten).	
227.4	1319	0.5	Flensburg (Germany). (*Relays Hamburg*)	
225.9	1328	10	Fécamp, Radio-Normandie (France)	
224.4	1337	1	Cork (Irish Free State)	
222.9	1346	0.15	Hüdiksvall (Sweden)	
219.9	1365	1.5	Béziers (France)	
218.5	1373	0.2	Plymouth	
218.5	1373	0.5	Salzburg (Austria). (*Relays Vienna*)	
217	1382	0.5	Königsburg (East Prussia) (Germany)	
217	1382	0.25	Karlstad (Sweden)	
215.6	1391	0.1	Brussels, Radio-Chatelineau (Belgium)	
215.6	1391	0.2	Halmstad (Sweden)	
214.3	1400	1	Aberdeen	
211.3	1420	1	Newcastle	
209.8	1430	1.25	Magyarovar, Miskolcz and Pecs (Hungary)	
207	1450	0.15	Boras (Sweden)	
206	1460	0.2	Ornsköldsvik (Sweden)	
204.1	1470	0.2	Gävle (Sweden)	
202.7	1480	0.25	Kristineham (Sweden)	
201.3	1490	0.25	Hälsingborg (Sweden)	
195	1530	0.2	Karlskrona (Sweden)	

PRINCIPAL SHORT-WAVE STATIONS.

(N.B.—Times of Transmission, given in parentheses, are approximate only and represent B.S.T.)

Metres.	Kc.	Call Sign.	Station.	Tuning Positions.
80.0	3,750	2RO	Rome	
70.2	4,273	RW15	Khabarovsk (Russia). (*Daily* 10.00–13.00)	
63.0	4,760	CT3AR	Funchal (Madeira). (*Wed.* 21.30, *Sun.* 15.30)	
62.56	4,795	VE9BY	London, Ont. (Canada). (*Sun.* 07.00)	
62.5	4,800	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 01.00)	
58.3	5,146	PMY	Bandoeng (Java). (*Daily* 13.20 *and* 08.00)	
58.0	5,172	OK1MPT	Prague (Czechoslovakia). (*Tues. and Fri.* 20.30.)	
54.52	5,502	W2XBH	Brooklyn, N.Y. (U.S.A.). (*Relays WCGU*)	
52.7	5,690	FIUI	Tananarive, P.T.T. (Madagascar)	
52.5	5,714	HCJB	Quito (Ecuador). (*Daily* 13.30)	
51.22	5,857	XDA	Chapultepec (Mexico)	
50.6	5,930	HKO	Medellin (Colombia)	
50.26	5,970	HVJ	Vatican State, Rome. (*Daily* 20.00)	
50.0	6,000	ZL3ZC	Christchurch (New Zealand). (*Wed.* 01.00, *Sat.* 08.30.)	
50.0	6,000	—	Bucharest (Roumania)	
50.0	6,000	RW59	Moscow (*Relays Trades Union Stn.*)	
50.0	6,000	EAR25	Barcelona, Radio Club (Spain). (*Sat.* 21.00)	
49.96	6,005	HRB	Tegucigalpa (Honduras). (*Daily ex. Sun.* 01.00–06.00.)	
49.83	6,020	W9XF	Chicago, Ill. (U.S.A.). (*Relays WENR*)	
49.8	6,023	XEW	Mexico City (Mexico). (*Daily* 02.00)	
49.67	6,042	W2XAL	Coytesville, N.J. (U.S.A.). (*Relays WRNY.*)	
49.6	6,048	W3XAU	Philadelphia, Pa. (U.S.A.). (*Relays WCAU.*)	
49.59	6,050	VE9HX	Halifax (Nova Scotia). (*Relays CHNS*)	
49.58	6,050	GSA	Empire Broadcasting, Zones 4–5	
49.5	6,060	VQ7LO	Nairobi (Kenya Colony). (*Daily* 17.30)	
49.5	6,060	W8XAL	Mason, Ohio (U.S.A.). (*Relays WLW*)	
49.43	6,069	VE9CS	Vancouver, B.C. (Canada)	
49.4	6,072	OXY	Skamlebaek (Denmark). (*Relays Copenhagen.*)	
49.4	6,072	UOR2	Vienna. (*Tues.* 14.00, *Thurs.* 16.00, *Sat.* 21.00.)	
49.34	6,080	W2XCX	Kearny, N.J. (U.S.A.). (*Relays WOR*)	
49.34	6,080	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
49.22	6,095	VE9GW	Bowmanville, Ont. (Canada). (*Daily* 21.00)	
49.2	6,098	ZTJ	Johannesburg (S. Africa). (*Weekdays* 10.00, 15.00 [*Sat.* 15.30] *and* 18.00, *Sun.* 11.00 *and* 17.30.)	
49.18	6,100	W3XAL	Bound Brook, N.Y. (*Relays WJZ*)	
49.1	6,110	VUC	Calcutta, India. (*Daily* 11.00)	
49.02	6,120	W2XE	Long Island, N.Y. (U.S.A.). (*Relays WABC.*)	
48.86	6,140	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
48.8	6,147	VE9CL	Winnipeg (Canada). (*Daily ex. Sun.* 01.30)	
48.65	6,167	XIF	Mexico City (Mexico)	
48.35	6,205	HKC	Bogota (Colombia). (*Daily* 16.00)	
48.2	6,220	2RO	Rome (Italy)	
48.05	6,243	HKD	Barranquilla (Colombia). (*Weekdays* 21.45)	
48.0	6,250	CN8MC	Casablanca (Morocco). (*Relays Rabat*)	
47.0	6,382	HC1DR	Quito, Ecuador. (*Daily* 02.00)	
46.69	6,425	W3XL	Bound Brook, N.J. (U.S.A.). (*Relays WJZ irregular.*)	
46.67	6,426	VE9BY	London, Ont. (Canada). (*Sat.* 02.00 *Sun.* 03.00.)	
45.38	6,611	REN	Moscow (*Relays Trade Union Stn.*)	
45.0	6,667	FM8KR	Constantine (Algeria). (*Mon. and Fri.* 23.00.)	
45.0	6,667	TGW	Guatemala City (Central America). (*Daily* 04.00.)	
43.75	6,860	—	Radio Vitus, Paris. (*Daily* 20.30)	
43.0	6,970	EAR110	Madrid. (*Tues. and Sat.* 23.30)	
41.7	7,195	VS1AB	Singapore (Malay States). (*Sun. and Wed.* 16.30.)	
41.6	7,211	EAR58	Teneriffe (Radio Club) (Canary Islands)	
41.5	7,230	HB9D	Zurich (Radio Club) (Switzerland). (*1st and 3rd Sun.*)	
41.0	7,320	HSP2	Bangkok (Siam). (*Mon.* 15.00)	
40.3	7,443	HBQ	Radio Nations, Prangins (Switzerland). (*Sun.* 23.00–23.45).	
39.7	7,556	HKF	Bogota (Colombia). (*Westinghouse Labs.*)	
39.4	7,612	X26A	Nuevo Laredo (Mexico). (*Thurs.* 17.00)	
38.7	7,797	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 23.00–23.15.)	
36.92	8,125	PLW	Bandoeng (Java). (*Daily* 11.00–15.00)	
34.68	8,650	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 24.00)	
34.68	8,650	VE9BY	London, Ont. (Canada). (*Mon.* 22.00)	
33.50	8,928	TGX	Guatemala City (S. America)	
32.26	9,300	—	Rabat (Morocco). (*Sun.* 22.00)	
31.58	9,500	PRBA	Rio de Janeiro (Brazil). (*Daily* 22.30)	
31.55	9,510	VK3ME	Melbourne (Australia). (*Wed. and Sat.* 11.00.)	
31.54	9,510	GSB	Empire Broadcasting, Zones 2, 4, 5	
31.48	9,530	W2XAF	Schenectady, N.Y. (U.S.A.) (*Relays WGY*)	
31.38	9,560	DJA	Zeesen (Germany). (*Daily* 11.00)	
31.35	9,570	SRI	Posen (Poland). (*Tues. and Thurs.* 18.30)	
31.35	9,570	W1XAZ	East Springfield, Mass. (U.S.A.). (*Relays WBZ.*)	
31.3	9,582	W3XAU	Philadelphia, Pa. (U.S.A.). (*Daily ex. Thurs. and Fri.* 22.00.)	
31.3	9,580	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 23.00–23.15.)	
31.29	9,585	GSC	Empire Broadcasting, Zone 3	
31.28	9,590	VK2ME	Sydney (Australia). (*Sun.* 11.00)	
31.25	9,598	CT1AA	Lisbon (Portugal). (*Tues. and Fri.* 23.00–01.00.)	
31.10	9,640	HS2PJ	Bangkok (Siam). (*Mon.* 03.00–06.00)	
30.43	9,869	EAQ	Aranjuez (Spain). (*Daily* 00.30) *Sat.* 19.00)	
30.0	10,000	—	Belgrade (Yugoslavia). (*Mon.* 20.00)	
29.3	10,238	T14NRH	Heredia (Costa Rica). (*Daily* 23.00 *and* 03.00.)	
28.98	10,350	LSX	Buenos Aires (Argentina). (*Daily* 21.30)	
26.83	11,180	CT3AQ	Funchal (Madeira). (*Tues. and Thurs.* 11.30–13.30.)	
25.63	11,700	FYA	Pontoise (France). (*Colonial Stn. E-W, daily* 20.00.)	
25.6	11,720	VE9JR	Winnipeg (Canada). (*Daily ex. Sat. and Sun.* 18.15.)	
25.53	11,750	GSD	Empire Broadcasting, Zones 1 & 4	
25.5	11,760	XDA	Chapultepec (Mexico). (*Daily* 21.00)	
25.4	11,810	VE9GW	Bowmanville (Canada). (*Daily* 19.00)	
25.4	11,810	2RO	Prato Smeraldo, Rome. (17.00 *and* 20.30)	
25.34	11,840	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
25.28	11,865	GSE	Empire Broadcasting, Zone 2	
25.27	11,870	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
25.2	11,905	FYA	Pontoise (France). (*Colonial Stn. N-S*)	
23.38	12,830	—	Rabat (Morocco). (*Sun.* 12.30)	
20.5	14,630	XDA	Chapultepec (Mexico). (*Daily* 20.30)	
19.9	15,075	T14NRH	Heredia (Costa Rica). (*Sat., Sun., Mon.* 17.00 *and* 22.00.)	
19.84	15,120	HVJ	Vatican State, Rome. (*Daily* 11.00)	
19.81	15,140	GSF	Empire Broadcasting, Zone 5	
19.73	15,200	DJB	Zeesen (Germany). (*Daily* 14.00–18.00)	
19.72	15,210	W8XK	East Pittsburg, Pa. (U.S.A.) (*Relays KDKA.*)	
19.68	15,244	FYA	Pontoise (France). (*Colonial Stn. E-W*)	
19.56	15,340	W2XAD	South Schenectady, N.Y. (U.S.A.) (*Daily* 19.00.)	
16.9	17,750	HSP	Bangkok (Siam). (*Sun. and Tues.* 22.00)	
16.88	17,770	GSG	Empire Broadcasting, Zone 2	
16.87	17,780	W3XAL	Bound Brook, N.J. (*Weekdays* 14.00)	
16.57	18,105	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
14.47	20,730	LSY	Buenos Aires (Argentina). (*Sun.* 22.00)	
13.97	21,470	GSH	Empire Broadcasting, Zone 3 (*Daylight working.*)	
13.92	21,540	W8XK	East Pittsburg (*Relays KDKA.*)	

FOREIGN SUNDAY PROGRAMMES

APRIL THE TWENTY-THIRD

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Service in memory of the men of the Dover Patrol who fell in the action off Zebrugge, 1918. Orchestral concert from Bournemouth.
LONDON REGIONAL	Sunday orchestral concert.
MIDLAND REGIONAL	Boy Scouts' Parade Service, from St. Mary's Church, Nottingham.
WEST REGIONAL	Orchestral concert.
SCOTTISH REGIONAL	Service from Govan Parish Church.
NORTH REGIONAL	Service from Priory Place Methodist Church, Doncaster.

ABROAD

BERO-MUNSTER	5 p.m. Extracts from opera, "Faust," by Gounod.
BUCHAREST	8 p.m. "St. George's Night," opera comique, by Flondor.
BUDAPEST	7.30 p.m. Opera: "Aida," by Verdi, from the Royal Opera House.
EIFFEL TOWER	2.5 p.m. Commentary on football match, France v. Spain.
MORAVSKA-OSTRAVA	10 a.m. Opera: "La Serva Padrone" (Pergolesi) from the National Theatre.
MUNICH	8.30 p.m. Act 3 of "The Mastersingers" (Wagner), from the National Theatre.
RADIO PARIS	8.35 p.m. "White Horse Inn," a musical play from the Théâtre Mogador.
ROME	8.45 p.m. Operetta: "The Girl in the Taxi," by Gilbert.
SOTTENS	8.30 p.m. "Lilac Time" (Schubert-Berté), from the Municipal Theatre, Lausanne.
VIENNA	5 p.m. The Philharmonic Orchestra. 8.10 p.m. The State Opera Choir and Symphony Orchestra.

ATHLONE

725 kc/s, 413 metres; 60 kW., and **Cork, 1,337 kc/s, 224.4 metres.**—**8.30 p.m.,** Time Signal. **8.31** (from **Cork**), Concert by the Cork Oratorio Society. **9.0,** Concert by the Station Orchestra. Soloists: Nora Gruhn (Soprano), Leslie Jones (Baritone), and Ben Williams (Tenor). **10.0,** Shakespeare Anniversary Programme: Scenes from his Plays by Mary O'Hea and Company. **10.30,** The Station Orchestra. **11.0,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

(EAJ1) 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Concert by the Station Orchestra. **7.40,** Guitar Recital. **8.0,** Concert by the Station Orchestra; Soloists, Paquita Gibert (Songs) and Josefa Tomas (Pianoforte). **9.0,** Concert of Dance Music by the Demon's Jazz Band, relayed from the Hollywood Bar Dance Hall. **10.0,** Extracts from Quijoterias—Opera (Vincente Diez de Tejada), on Gramophone Records. **11.45,** Chess Lesson. **1.0 a.m. (Monday)** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**10.45 a.m.,** Agricultural Report. **11.5,** Sacred Music from the Church of San Domenico. **11.30,** Bible Reading. **1.0 p.m.,** Giornale Radio. **1.10,** Popular Music on Gramophone Records. In the intervals at **1.55,** Weather, and at **2.0,** Time and Announcements. **5.30,** Popular Music on Gramophone Records. **6.30 to 8.0,** Interval. **8.0,** Sports Notes and Giornale Radio. **8.30,** Time and Announcements. **8.35** (approx.), Concert. In the interval, Reading. **10.30,** Popular Music on Gramophone Records. **10.55,** News.

BASLE.—See **Schweizerischer Landessendar.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**4.30 p.m.,** Flute Recital. **5.0,** Gramophone Records of Variety Music. **7.0,** Time and Programme Announcements. **7.5,** Quintet, Op. 12, for Pianoforte, two Violins, Viola and 'Cello (Novak). **7.30,** Talk on Wireless. **8.10,** Sports Notes. **8.30,** Extracts from A Life for the Czar—Opera (Glinka). **10.0,** News, followed by Orchestral Concert.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 61 kW. **11.30 a.m.,** See **Leipzig. 12.5,** See **Breslau.** In the interval at **12.30,** Relay of the Ceremony of the Presentation of the Colours at Kalkberge. **2.0 p.m.,** Talk for Parents. **2.30,** The Golden Goose—A Fairy Tale (after Grimm), arranged as a Radio Play for Children. **3.15,** Military Band Concert relayed from **London. 4.0,** Unfamiliar Passages from Shakespeare. **4.30,** Concert conducted by Erich Röth: Overture, The Thieving Magpie (Rossini); Waltz, Stunden, die wir nie vergessen (Groschel); Selection from Tiefland (d'Albert); Kleiner wiener Marsch (Kreisler). **5.0,** Programme for Young People: A Recital by a Speaking Choir of Young Hitlerites. **5.30,** Recital of Modern Songs by Carl Schlottmann. **6.0,** Talk: The Struggle for Existence in the East Mark—the Safeguarding of the Minorities. **6.30,** Pianoforte Trio in C, Op. 87 (Brahms). **7.0,** Aufbruch der Jugend, 1813—a Historical Radio Sequence (Theodor Bötticher). **8.0,** See **Stuttgart. 9.0,** Abel with the Mouth Organ—A Radio Play, after the Novel by Manfred Hausmann. **10.15,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Programme from **Berlin (Witzleben). 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW. **11.30 a.m.,** See **Leipzig. 12.5 p.m.,** Concert from **Breslau. 2.0,** Talk for Parents. **2.30 to 3.10,** Tales of Münchhausen for Young People. **3.30,** Orchestral Concert, conducted by Alexander Hesse. **4.30,** Topical Programme. **4.45,** Orchestral Concert (contd.). **5.30,** Through the Periodicals—a Political Review. **6.0,** Chamber Music by the Steiner Quartet: String Quartet in C Minor (Mozart); Pianoforte Quintet in F Minor, Op. 34 (Brahms). **7.0,** Service to the People—a Radio Report: Commentators: Dr. Günther Volkmar, Hermann Proebst, Hans Theodor Wagner, Walter Stretter and Fritz Lau-kisch. **8.0,** Sports Notes, followed by German Soil—German Song—Programme by the Station Orchestra, the Station Choir and Soloists. **10.0,** Weather, News, and Sports Notes. **10.15** (approx.), Concert and Dance Music. **12 Midnight** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessendar.**

BEROMUNSTER. — See **Schweizerischer Landessendar.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**6.0 p.m.,** A Play (Navratil). **7.0,** See **Moravská-Ostrava. 8.0** till Close Down, See **Prague. 11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.**—**11.30 a.m.,** See **Leipzig. 12.5 p.m.,** Concert by the Silesian Philharmonic Orchestra. **2.0,** News. **2.10,** Agricultural Talk. **2.25,** Talk: The Protection of Birds in Spring. **2.40,** Talk: The Evolution of Ploughing Implements. **3.0,** Reading: Das Gold des Zwerges (Trude Peters-Arnolds). **3.30,** Talk: The Art of growing old gracefully. **3.55,** Musical Programme for Children by Children. **4.25,** Concert from **Heilsberg. 5.40,** Georg Grabenhorst reads from his own Works. **5.0,** See **Vienna. 6.15,** Sports Review. **6.55,** Weather Forecast. **7.0,** See **Berlin (Königs Wusterhausen). 8.0,** See **Langenberg. 10.0,** Time, Weather, News, Sports Notes and Programme Announcements. **10.30,** Dance Music from **Berlin (Witzleben). 12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW. **12.5 p.m.,** Military Band Concert of Popular Music. Conductor: Capt. Hanel. **1.30 to 1.45,** See **Prague. 4.0,** See **Moravská-Ostrava. 5.30,** A Play (Peschek), with Music by a Flute Orchestra. **6.0,** German Transmission: Concert by the Johannis-Truppe Sextet. **6.45,** Gramophone Records for Children. **7.0,** See **Moravská-Ostrava. 7.15,** Two Scenes for Broadcasting. **8.15,** Song Recital by Lola Kratochvilova. **8.35,** Violin Recital by Prof. Muzika. **9.0,** See **Prague. 11.0** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**10.0 a.m.,** Gramophone Concert. **11.0,** Concert by the Small Orchestra. **12 Noon,** Concert by the Radio Orchestra, conducted by Franz André; Soloist, Mme. Marville (Songs). **1.0 p.m.,** Le Journal Parlé. **1.10,** Light Music on Gramophone Records. In the interval at **1.30,** Monologues by Mr. Reginald. **3.45,** Running Commentary on the Cycling Race, Paris to Brussels. **5.0,** Dance Music, relayed from the St. Sauveur Palais de Danse. **5.30,** Football Results. **6.0,** Quartet in F (Haydn), on Gramophone Records. **6.15,** Organ Recital by Louis Joos, relayed from the Carmelite Church: Hymne au soleil (Vierne); Prière (Jongen); Minuet (Saint-Saëns); Fugue in E Flat (Albrechtsberger). **6.45,** Reading for Children. **7.0,** Overture, Tannhäuser (Wagner), on Gramophone Records. **7.15,** Religious Address. **7.30,** Talk and Music Review. **8.0,** Concert by the Radio Orchestra, conducted by Franz André; Soloists, Mme. Conchita de Aguila (Castanets), MM. White Johnson, Chao Mei Pa, and Durand (Songs): Old French Dances and Songs (arr. Trémoio); Castanet Solos (Sentis); (a) La Majas, (b) Pierra Hispana; Chinese Dance (Tchaikovsky); Chinese Dance (Coates); Popular Chinese Songs by M. Chao Mei Pa; Le porte-drapeaux (Volant); Les gamins bruxellois (Blangenois). **8.45,** Au bien venu—Sketch (Blandin). **9.0,** Concert (contd.). **10.0,** Le Journal Parlé. **10.10,** Dance Music on Gramophone Records. **10.30,** Orchestral Concert relayed from the Ancienne Belgique.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**10.0 a.m.,** Concert by the Little Orchestra, conducted by P. Leemans. **11.0,** Wind Instrument Concert, relayed from **Ghent. 1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Radio Orchestra, conducted by Franz André: Soloist: Mme. Lambert (Songs). **5.0,** Concert by the Symphony Orchestra, conducted by Jean Kumps. In the interval at **5.30,** Sports Notes. **6.0,** Gramophone Concert of Classical Music. **6.30,** Concert by the Little Station Orchestra, conducted by P. Leemans. **7.15,** Religious Address. **7.30,** Music Review. **8.0,** Concert by the Symphony Orchestra, conducted by Jean Kumps; Soloist, Mlle. Berthe Bernard (Pianoforte): Norwegian Rhapsody (Lado); Concerto in D Minor for Pianoforte (Mozart); Canadian Fantasia (Gilson). **8.35** (approx.), Running Commentary on the Finish of the Cycling Race Paris-Brussels. **8.45,** Reading. **9.0,** Concert (contd.): Carnaval de Paris (Svendsen); 'Cello Solo, Le Cygne (Saint-Saëns); Songs; Violin Solo, Romance from Thaïs (Massenet); Bourrée fantasque (Chabrier); Songs; Ballet (Luigini). **10.0,** Le Journal Parlé. **10.10,** Light Music on Gramophone Records. **10.40,** Concert by Paul Moreaux and his Orchestra, relayed from the Menuline Hall, Antwerp. **12 Midnight** (approx.), Close Down.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**10.0 a.m.,** Programme for Workers. **10.30,** Religious Programme. **11.15,** Concert of Light Music. **12 Noon,** Gramophone Concert of Light Music. In the interval at **1.0 p.m.,** Radio Journal. **4.0,** Programme for Peasants. **5.0,** Light Music and Roumanian Music by The Marco Orchestra. In the interval at **6.0,** Radio Journal. **7.0,** Talk and Review. **7.55,** Time Signal. **8.0,** St. George's Night—Opera-Comique (Flondor). In the intervals, Radio Journal. **10.0,** Light Music, relayed from a Restaurant.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **7.25 p.m.** till Close Down. **11.15 a.m.,** Divine Service followed by Concert by the Opera House Orchestra, conducted by Ernst Dohnanyi. In the Interval: Wireless Chronicle. **2.0 p.m.,** Gramophone Concert of Classical and Light Music. **3.0,** Agricultural Talk. **3.45,** Educational Programme. **4.20,** News. **4.40** (approx.), Concert by the Budapest Concert Society. **5.30,** Bunter Abend. **7.30,** Aida—Opera in Four Acts (Verdi), relayed from the Royal Opera House. In the interval: News. **11.0,** Concert of Cigány Music from the Café Patria.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW., and **Kalundborg, 200 kc/s, 1,153 metres;** 7.5 kW.—**10.0 a.m.,** Divine Service from the Garrison Church. **11.50,** Weather and News. **12 Noon,** Time and Chimes from the Town Hall. **12.2 p.m.,** Concert of Light Music by Louis Pieri's Instrumental Ensemble. **1.30,** Talk in English: A Grand Tour of England. **1.50,** Talk in German on Hermann Hesse. **2.10,** Talk in French. **2.25,** Variety Music on Gramophone Records. **2.55,** Programme for Children. **3.25,** Concert by the Radio Orchestra, conducted by Emil Reesen, relayed from the Concert Hall Studio, **Axelborg. 5.0** (also relayed by **Skamleback** on **31.51 metres**), Divine Service from Christiansborg Castle Church. **6.20,** Talk on Denmark's Youth Hostels. **6.50,** Weather. **7.0,** News. **7.15,** Time and Sports Notes. **7.30,** Talk: Religious Instruction in Schools. **8.0,** Time Signal and Chimes from the Town Hall. **8.2,** Variety Programme. **8.30,** Concert of French and Russian Opera Music. **9.30,** A One-Act Radio Play (Sladen-Smith). **10.0,** Saxophone and Marimba Recital by G. E. Törnqvist and Richard Stangerup. **10.20,** News. **10.30,** Duets for Two 'Cellos, by Rudolf Dietzmann and Volmer Norup: Duo concertant in D, Op. 34, No. 1 (Offenbach); Andante Scherzo from the Duo concertant in A, Op. 31, No. 3 (Offenbach). **10.55,** Dance Music by the Teddy Petersen Band, relayed from the Wivex Restaurant. In an interval at **12 Midnight,** Time Signal and Chimes from the Town Hall. **12.30 a.m. (Monday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,327 kc/s, 226 metres; 10 kW.—**12 Noon,** Gramophone Concert of Light Music, followed by News. **12.30 p.m.,** Concert of Variety Music. **4.0 to 8.0,** Programme in English by the I.B.C. C. Danvers-Walker, B. McNabb, and F. Lamping announcing. **4.0,** Programme for Children. **4.30,** Children's Club Concert. **5.0,** Club Concert for Guernsey and Channel Islands Listeners: March, The Thunderer (Sousa); Dance of the Raindrops (Reeves); Talk by Mrs. Compton Mackenzie; Serenade (Haykens); The Wee Macgregor Patrol (Amers); Let's all sing like the Birdies sing; Sea Shanty, Shenandoah (arr. Tarry); Selection from San Toy (Monckton); Xylophone Solo, Carnival of Venice (arr. Gaston); La Donna e mobile, from Rigoletto (Verdi); Orchestra, Autumn (Chaminade); Piccolo Solo, Deep Blue Sea (Brewer); Selection from Iolanthe (Sullivan); Song, At Dawning (Cadman); March Past of the Royal Guernsey Light Infantry, Light of Foot (Latann). **6.0,** Military Band Concert: The Gladiator March (Sousa); Ce n'est Paris (Padilla); The Middy March (Alford); A Merry Hunting Day (Bucalossi); The Crusader March (Sousa); Loin du bal (Gillet); The Elephant; Fire Star. **6.30,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: Wiener Praterleben (Translateur); Song, Wandering Days (Strickland); Duet, Only One Girl in the World for me; Reminiscences of Ireland; Song, Would you take me back again? (De Rose); Duet, Star of the Night; Selection from Miss Hook of Holland (Rubens). **7.0,** Faraday Concert of Light Music; Rhythm Spasm; Electrical Transcription of an American Broadcast; Mad Moments; Electrical Transcription of an American Broadcast; Hot Feet; Electrical Transcription of an American Broadcast; Old Yazoo. **7.30,** Light Orchestral Music: Monastery Bells (Welv); Salut d'amour (Elgar); The Mill in the Forest (Eilenberg); Serenade (Pierné); Dancing Doll (Poldini); Donauwellen (Ivanovici); Demande et réponse (Coleridge-Taylor); Künstlerleben (Strauss). **8.0,** Concert of Opera and Operetta Music. **9.0** till Close Down. Programme in English by the I.B.C. **9.0,** Organ Recital; Overture, Poet and Peasant (Suppé); To a Wild Rose (Macdowell); Selection from Cavalleria rusticana (Mascagni); Menuet antique (Watling); Song without Words

(Tchaikovsky); Le Cygne (Saint-Saëns); Waltz Suite No. 3 (Coleridge-Taylor). **9.30,** Concert of Light Music: Selection from Figaro (Mozart); Pianoforte Solo, The Bee's Wedding (Mendelssohn); Tenor Solo, Santa Lucia (Traditional); Quintet, The Song of the Nightingale (Ailbout); Soprano Solo, Carry me back to old Virginny; Tenor Solo, Sigh no more, Ladies (Stevens); Selection from H.M.S. Pinafore (Sullivan). **10.0,** Vocal Concert: Brothers of the Empire (Helmore); My Sword and I (Byng); The Drum Major (Newton); Orchestra: Gold and Silver (Lehár); The Volunteer Organist (Lamb); Route Marching (McCall); I am a Friar of Orders Grey (Reeve); Orchestra, Waltz from Bitter Sweet (Coward). **10.30,** Concert of Popular Music: Selection from The Yeomen of the Guard (Sullivan); Let me explain; Twentieth Century Blues; Oh you Sweet Thing; Deep Forest; Wild Waves; The Wise old Owl said Hoo; Hold up your Hand. **11.0,** Orchestral and Vocal Concert: Selection from Frederica (Lehár); Songs: (a) Love Everlasting (Friml), (b) The Song of Songs (Moya), You are my Heart's Delight (Lehár); Selection from Sunny (Kern); Songs: (a) Just because I lost my Heart, (b) To-day I feel so happy; Selection from The Merry Widow (Lehár). **11.30,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: Waltz Favourites; Songs: (a) Biddy Mulligan, (b) Hush-a-bye Baby; Selection from La Poupée (Audran); Songs: (a) Down by the Liffey Side, (b) I hear you calling me; Vienna, Vienna. **12 Midnight,** Club Concert for Guernsey and Channel Island Listeners: March, The Thunderer (Sousa); Dance of the Raindrops (Reeves); Talk by Mrs. Compton Mackenzie; Serenade (Heykens); The Wee Macgregor Patrol (Amers); Let's all sing like the Birdies sing; Sea Shanty, Shenandoah (arr. Terry); Selection from San Toy (Monckton); Xylophone Solo, Carnival of Venice (arr. Gaston); La Donna e mobile, from Rigoletto (Verdi); Orchestra: Autumn (Chaminade); Piccolo Solo, Deep Blue Sea (Brewer); Selection from Iolanthe (Sullivan); Song, At Dawning (Cadman); March Past of the Royal Guernsey Light Infantry, Light of Foot (Latann). **1.0,** Concertina Solos: Lopeziana; Irish Medley; Marilyn; Scottish Reels; Harmonica Duet, Polly; Hornpipe Medley; Bonnie Lass o' bon accord; Orange and Blue. **1.30,** Songs: Around the Corner; Granny's Old Arm Chair; I'm betting the Roll on Roamer; Xylophone Solos, (a) The Huntsman, (b) Handsome Gigolo; Down the Railroad Track; Little Brown Jug; Xylophone Solo, Looping the Loop. **2.0,** Dance Music by the Dcolians: To-day's the Day; Round the Marble Arch; By the Bend of the River; Paradise; Goodnight, Vienna; Hurt; Just another Dream of you; Selection from On with the Show; When the Band goes marching by; It ain't no Fault of mine; I wonder why; Lullaby of the Leaves; Five Minutes to Twelve. **2.57,** I.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—**11.30 a.m.,** See **Leipzig. 12 Noon,** Military Band Concert. **1.0 p.m.,** See **Langenberg. 2.30,** Agricultural Talks. **2.40,** Rural Programme. **3.30,** Programme for Children. **4.30,** See **Stuttgart. 6.0,** Talk: Wagner and his Circle—Ludwig Schemann. **6.25,** Reading of a Short Story. **6.45,** Struwwelpeter Recitation with Music by Norbert Schultze, the Composer at the Pianoforte. **7.10,** Sports Report. **7.20 to 9.30,** See **Stuttgart. 9.30,** Songs from Tegner's Frithiof's Saga. **10.10,** Time, News, Weather and Sports Notes. **10.30,** See **Stuttgart. 12 Midnight** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres,** and **Kiel, 1,292 kc/s, 232.2 metres.**—**11.30 a.m.,** See **Leipzig. 12 Noon,** Concert by the Hamburg Philharmonic Orchestra, conducted by Adolf Seeker. **2.0 p.m.,** Concert of Chamber Music, Erna Kroll-Lange (Songs), Bruno Micksche (Violin), and Gerhard Maasz and Richard Beckmann (Pianofortes). **2.45,** Eberhard König Programme: Reading by the Author, Address and Music. **4.0,** Demonstration of the Frontier Districts for the Children's Relief Fund, relayed from the Heidelburg in Hausbruch; Talk and Songs. **4.35** (from **Hanover**), Peehvogel und Glückskind—Marionette Play, arranged for Radio by Werner Perrey. **5.35,** Dialogue: The European Wrestling Championship in Helsingfors. **5.45,** Sports Notes. **6.0** (from **Kiel**). Bible Reading in Dialect. **6.50,** Weather. **7.0,** The Art of Propaganda—Radio Sequence: I—St. Boniface, II—Ulrich von Hutten, III—Ernst Moritz Arndt, IV—Dr. Joseph Goebbels, followed by Scenes from Der Wanderer—Play (Joseph Goebbels). **8.30,** The German Countryside in Music. Concert by the Hamburg Philharmonic Orchestra, conducted by José Eibenschütz. Introductory Talk and Commentary by Dr. Walter Hapke. Thuringia; Organ Choral, Ich hab' mein' Sach' Gott heimgestellt (Bach); Lower Saxony: Andante sostenuto from the First Symphony (Brahms); Austria: Waltz, The Blue Danube (Joh. Strauss); The Rhineland: Sonntags am Rhein (Schumann); Bavaria: Waltz from Intermezzo (R. Strauss); East Prussia: Aria from Undine (Hoffmann); Silesia: Kleist-Ouverture (Wetz); Brandenburg: March, Der Hohenfriedberger; Deutschlandlied (Haydn). **10.0,** Time, Weather Announcements, Sports Notes and Police Report. **10.20,** Topical Talk. **10.30,** Dance Music from **Berlin (Witzleben).**

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW., and **Danzig, 662 kc/s, 453.2 metres.**—**11.30 a.m.,** See **Leipzig. 12.5 p.m.,** Concert from **Breslau. 2.0,** Chess Lesson. **2.30** (from **Danzig**), Programme for Children. **3.0,** Variety Programme for Young People. **3.45** (from **Danzig**), Concert by the Danzig Municipal Theatre Orchestra. **5.50,** Reading of Animal Stories. **6.15,** Songs to the Harp by Grete Kraiger and Friedel Ellguth. **6.45** (from **Danzig**), Recital of Brahms' Pianoforte Duets by Ella Mertins and Hugo Sonnik; Variations on a Schumann Theme, Op. 23; Four Hungarian Dances: (a) No. 2 in D Minor, (b) No. 3 in F, (c) No. 5 in C Sharp Minor, and (d) No. 6 in D Flat. **7.15,** Reading. **7.45,** Sports Report. **8.0,** Concert by the Königsberg Opera House Orchestra, conducted by Ludwig Leschetizky, the Königsberg Choral Society, conducted by Hugo Hartung, and August Hewers (Violin): Overture, Rübezahl (Weber); Oriental Sketches for Violin and Orchestra (Zilcher): (a) Call of the Muezzin, (b) Dance of the Dervishes; Gipsy Dance (Bizet); Choir: (a) Von Freiheit und Vaterland (Goepfart), (b) East Prussian Song (Welter), (c) Muttersprache (Hegar), (d) Heimat (Prümers), (e) East Prussian Hymn (Besch), (f) Heimatgebet (Kaun), (g) Was ist des Deutschen Vaterland (Reichardt); Carnival Overture (Dvorak); Musik am Abend (Graener); Spanish Caprice (Rimsky-Korsakov). In the interval at **9.0** (approx.), News. **10.10,** News and Sports Notes. **10.30** (approx.), Dance Music, relayed from **Berlin (Witzleben). 12 Midnight,** Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up **to 5.40 p.m.**).—**12.40 to 5.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **12.40,** Time Signal. **12.41,** Popular Music on Gramophone Records. **1.10,** Concert by the Station Orchestra, conducted by Nico Gerharz. In the interval, Light Music on Gramophone Records. **2.40,** Weekly Book Talk. **3.10,** Pianoforte Recital by Henriette Bosmans. **3.40,** Running Commentary on the Second Half of the Hockey Match, Holland v. Belgium. **4.40,** Milestones—Play (Arnold Bennett), with Introductory Talk. **5.25,** Sports Notes and Popular Music on Gramophone Records. **5.40,** Programme of the Workers' Radio Society (V.A.R.A.): Programme for Children. **6.40 to 8.40,** Programme of the Liberal Protestant Radio Society (V.P.R.O.). **6.40,** Book Review. **7.25,** Divine Service. **8.40** till Close Down, A.V.R.O. Programme. **8.40,** Time Signal. **8.41,** News Bulletin. **8.55,** Concert. **9.40,** Song Recital by L. W. Nijland. **10.0,** Concert by the Wireless Orchestra. **10.40,** A Play (Michael Arlen). **11.10,** Concert by Kovacs Lajos and his Orchestra, with Bob Scholte (Songs). **12.40 a.m. (Monday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**10.10 a.m. to 12.55 p.m.,** Programme of the Christian Radio Society (N.C.R.V.). **10.10,** Divine Service from **Enkhuizen. 12 Noon,** Sacred Songs for Choir. **12.55 to 5.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). **12.55,** Concert by the K.R.O. Sextet: Air de Ballet (Massenet); Ballet Music from Sylvia (Delibes); Overture, Nakiris Hochzeit (Lincke); Second Havanaise (Chaminade); Rubinstein Potpourri (Urbach); Geburtstagständchen (Lincke). **1.40,** Talk. **2.0,** Sextet Concert (contd.): Selection from I Pagliacci (Leoncavallo); Czardas (Lindsay-Theimer); Une fête au Trianon (Popy); Serenata diabolica (Cerri); Finale. **2.50,** Talk. **3.10,** Concert by the Schola Cantorum Ensemble. **5.10,** Programme for Invalids. **5.40 to 8.25,** N.C.R.V. Programme. **5.40,** Sacred Music on Gramophone Records. **6.10,** Organ Recital by Henk Loohuys. **6.40,** William the Silent Commemoration Programme, relayed from the Nieuwe Kerk, Amsterdam. **8.25** till Close Down, K.R.O. Programme. **8.25,** Talk. **8.50,** Football Results. **8.55,** Concert by the K.R.O. Orchestra, conducted by J. Gerritsen; Soloist: Elise de Haas (Soprano): Overture, Le roi l'a dit (Delibes); Selection from Romeo and Juliet (Gounod); Selection from Philémon et Baucis (Gounod); The Nightingale (Mabiev); Berceuse (Järnefeldt); Fantastic Waltz (Glazunov); Overture, Prince Igor (Borodin); The Enchanted Lake (Liadov); Suite from The Sleeping Beauty (Tchaikovsky). In an interval at **9.40,** News. **10.45,** News. **10.50,** Concert by the K.R.O. Orchestra, conducted by J. Gerritsen: Overture, The Crown Diamonds (Auber); Suite, In the Circus (Armandola); Waltz, Freut euch des Lebens (Strauss); Max und Moritz (Zimmer); March, Der Steirer (Noack). **11.20,** Epilogue by the Small Station Choir, conducted by J. Pickkers. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide and Concert. **8.15,** Literary Talk. **8.30,** Radio Concert. **8.50,** News Bulletin. **9.0,** Radio Concert. **10.30 to 1.0 a.m. (Monday),** Programme in English by the I.B.C. H. K. Hitchcock announcing. **10.30,** Concert of Light Music by the I.B.C. (Ireland), Ltd. Selection, Paris; The Wheeltapper's Song (Wolseley Charles); Stonecracker John (Coates); Popular Irish Medley; I feel you near me; A Pair of Blue Eyes; Violin Solo: Souvenir (Drdla); Selection, Happy Days. **11.0,** English Concert. **12 Midnight,** Concert: Stardust (Carmichael); Vienna, City of my Dreams (Sieczynski); Song of Songs (Moya); Orchestral Selection from Cavalcade (Coward); Take off your Coat (Longstaffe); When the Sergeant Major's on Parade (Longstaffe); Orchestra, Frees (Rasbach). **12.57 a.m.,** I.B.C. Good-night Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**6.30 p.m.,** Variety Items. **7.0,** Announcements and Gramophone Records. **7.10,** Musical Programme. **7.55,** See **Lwow. 8.0 to 11.30,** See **Warsaw. 11.30,** Dance Music.

KAUNAS

155 kc/s, 1,925 metres; 7 kW.—**7.30 p.m.,** Concert. **8.20,** Talk: Lithuanian Archæology. **8.40,** Variety Programme. **9.0,** Talk: Jean Jacques Rousseau. **9.20,** Concert: English Waltz (Preston); Overture, Der Opernball (Heuberger); Ballet Suite (Popy). **10.30** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**11.30 a.m.,** See **Leipzig. 12 Noon,** Talk: The German Housewife in the Colonies. **12.20 p.m.,** Talk on Music. **12.40,** Reading: The Resurrection of a Nation (Peter Dörfler). **1.0,** Orchestral Concert. **2.30,** Talk on Chess. **3.0,** Talk on William of Orange, on the Fourth Centenary of his Birth. **3.20,** Talk: Town and Country—Agriculture and German Week. **3.45,** Talk: The Animal World. **4.10,** Talk: Prominent Men in German History—Friedrich List. **4.30,** Concert from **Stuttgart. 6.0,** Talk: Towns of the Rhineland and Westphalia—Altena. **6.30,** Think German—Buy German—Radio Report in connection with German Week: Potato Grading Machines. **7.0,** A Grave and Gay Programme. **7.45,** Sports Notes. **8.0,** Concert by the Station Orchestra, conducted by Buschkötter; Soloist: Paul Eggert (Pianoforte): Overture, Euryanthe (Weber); Burlesque in D Minor for Pianoforte and Orchestra (R. Strauss); Interlude—Part I, German Poems (Jacob Kneip); Part II, Songs by a Children's Choir; Concert (contd.): Overture, The Nuremberg Doll (Adam); Waltz, Frühlingskinder (Waldteufel); Selection from The Merry Widow (Lehár); Blumengeflüster (Blon); Ballszene—after a Violin Etude (Maxteder-Hellmesberger); Florentine March (Fucik). **10.5,** News and Sports Notes. **10.30,** Serenade on Gramophone Records. **10.45,** Programme from **Stuttgart. 12.0 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**11.30 a.m.,** Ein Herz, das seinen Jesum lebend weiss—Cantata (Bach) by the Municipal and Gewandhaus Orchestra, the Choir of St. Thomas', and Soloists. **12 Noon,** Concert by the Dresden Philharmonic Orchestra, conducted by Hilmar Weber; Soloist: Walter Doell (Violin). **2.0 p.m.,** Weather and Time Signal. **2.5,** Talk: The Programme for the Coming Week. **2.25,** Agricultural Notes. **2.35,** Aetchen Schnuti—A Tale of an Ape (Grete Kösler). **3.0,** Concert by the Grossröhrsdorf Church Choir. **3.30,** Der Bürgergeneral—Comedy in One Act (Goethe), arranged for the Wireless by Will Tissot; Music by Heinz Fritzsche. **4.30,** Concert by the Leipzig Symphony Orchestra, conducted by Willy Steffen. **5.30,** Part Relay of the Opening of the Exhibition Reise und Erholung, in the Grassimaseum. **6.30,** Concert by the Leipzig Symphony Orchestra, conducted by Willy Steffen. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** Programme to be announced. **10.5,** News, followed by Programme from **Berlin (Witzleben). 12 Midnight,** Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**5.30 p.m.,** Light Music on Gramophone Records. **8.0,** Song Recital. **8.40,** Quintet Concert. **10.15,** Time, News, and Light Music on Gramophone Records. **11.0** (approx.), Close Down.

LWOW

788 kc/s, 381 metres; 16 kW.—**7.0 p.m.,** Talk on Economics. **7.25,** Musical Programme. **8.0,** See **Warsaw. 9.0,** Sports News. **9.10 to 12 Midnight,** See **Warsaw. 12 Midnight,** Close Down.

MADRID

ARANJUEZ, EAQ, 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** Variety Concert. **11.45** (in the interval), Humorous Talk. **12.35 a.m. (Monday),** Talk. **12.40,** Light Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**9.0 a.m. to 10 a.m.,** Topical Review. **12.30 p.m.,** Concert by the Municipal Band, conducted by Villa, relayed from the Retiro. **3.0,** Chimes, Time Signal, Theatre Notes and Concert by the Artys Orchestra. **5.0 to 8.0,** Interval. **8.0,** Chimes, Radio Journal and Dance Music relayed from the Ritz Hotel. **9.30 to 10.30,** Interval. **10.30,** Chimes and Time Signal. **10.35** (approx.), Concert: Part I: Recital of Russian Music by Leonid Zamuco (Pianoforte) and M. Wischnewsky (Tenor); Part II: Song Recital by the Castilla Male Voice Quartet. Part III: Song Recital by Herminda de Montesa. **1.0 a.m. (Monday),** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,367 kc/s, 263.8 metres; 11 kW.—**10.0 a.m.,** La Serva Padrona—Opera in Two Acts (Pergolesi), relayed from the National Theatre. **11.0,** See **Prague. 12.5 p.m.,** See **Brno. 1.30 to 1.45,** Interval. **4.0,** Concert by the Station Orchestra, conducted by Plichta. **5.30 to 6.45,** See **Prague. 7.0,** Concert of Light Music by the Station Orchestra. **8.0,** See **Prague. 11.0** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**4.30 p.m.,** Literary Programme. **5.30,** Talk for the Red Army. **6.30,** Variety Concert, relayed from the Conservatoire. **8.0,** Talk in German: A Day as a Member of a Factory Council. **9.0,** Talk in English: A Day as a Member of a Factory Council. **10.5,** Talk in Swedish: Students of the Proletariat.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—**11.30 a.m.,** See **Leipzig. 12 Noon,** See **Frankfurt. 1.5 p.m.,** Time, Weather, and Programme Announcements. **1.15,** Light Music on Gramophone Records. **2.30,** Chess Lesson. **3.15,** Literary and Musical Programme. **4.5,** Musical Programme. **4.25,** Concert, conducted by Erich Kloss. **5.25,** Reminiscences of my Colonial Days, by Fritz Lechner. **5.50,** Guitar Recital by Fritz Wörsching. **6.10,** Trio Concert, with Schackerl-Schneider (Songs). **6.40,** Weather and Sports Notes. **6.50,** Concert by the Station Orchestra. **8.15,** Introductory Talk to the following Transmission. **8.30,** Act III of The Mastersingers—Opera (Wagner), relayed from the National Theatre. **10.30,** Time, Weather, News, and Sports Notes. **11.0,** Serenade, conducted by Erich Kloss. **12 Midnight,** Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 816 kc/s, 365.8 metres; Hamar, 536 kc/s, 522 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 677 kc/s, 447.1 metres.**—**10.20 a.m.,** Divine Service, relayed from **Christiansand, 1,274 kc/s, 235.5 metres. 4.30,** Programme by Boy Scouts. **5.0,** Fjelleventyret—Play, with Music by Waldemar Thrane, relayed from the Norwegian Theatre. **7.15,** Weather and News. **7.30,** Concert by a Children's Choir, conducted by Marie Fearnley. **8.0,** Time Signal. **8.1,** Talk. **8.30,** Concert by the Station Orchestra, conducted by Hugo Kramm. In an interval at **9.40,** Weather, News, and Topical Talk. **11.0** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 542 metres; 3 kW.—**10.25 a.m.,** Bible Reading. **10.40,** Sacred Music. **11.5,** Agricultural Talk. **12.45 p.m.,** Giornale Radio. **1.0,** Concert of Light Music. In an interval at **1.30,** Time Signal, Announcements and Weather. **2.0 to 5.30,** Interval. **5.30,** Popular Music on Gramophone Records. **6.30 to 8.0,**

Interval. 8.0, Dopolavoro Notes and Giornale Radio. 8.20, Sports Notes. 8.25, Light Music on Gramophone Records. In an interval at 8.30, Time and Announcements. 8.45, Symphony Concert, conducted by A. La Rosa Parodi: Pastoral Symphony No. 6 (Beethoven); La cella azzurra (Rocca); Siegfried Idyll (Wagner); The Steel Foundry (Mossolov). In an interval, Talk. 10.0 (approx.), Light Music on Gramophone Records. 10.55, News.

PARIS

EIFFEL TOWER, Call FLE, 207 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 10.26 a.m. and 11.26 p.m. (Preliminary and 6-dot Signals).—1.15 p.m., Weather. 1.30, Radio Report on the Automobile Grand Prix from Monte Carlo. 2.50, Commentary on the France v. Spain Football Match. 6.45, Le Journal Parlé. 7.45, Programme for Children. 8.20, Weather. 8.30, Gramophone Concert of Variety Music. 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—9.45 a.m., Bible Reading. 10.0, News. 10.5, Sponsored Concert. 11.40, Gramophone Concert of Light Music. 12.15 p.m., Sponsored Concert. 12.45, Sponsored Talk. 12.50, Half-an-Hour of Fantasy by Paul Weill. 1.20, Interval. 1.30, Sponsored Programme. 2.0 to 6.45, Interval. 6.45, Journal Parlé. 7.0, Sports Notes. 7.15, Popular Music on Gramophone Records. 7.30, Catholic Review. 8.0, Interval. 8.15, Popular Music on Gramophone Records. 8.45, Interval. 9.0, Le Professeur—Sketch (Duvernois). 9.30 Concert by the Station Orchestra: Overture, The Drum Major's Daughter (Offenbach); Waltz, Gilded Youth (Gungl); Ballet Music from Hérodiade (Massenet); Selection from The Violin Maker of Cremona (Hubay); Orchestral Suite, España (Albéniz); Waltz, Soirée d'été (Waldteufel); Selection from Miss Decima (Audran); Poursuites (Busquet). 10.30, News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—7.45 a.m., Light Music on Gramophone Records. 8.0, Press Review and Weather. 8.30, Physical Culture. 12 Noon, Religious Address. 12.20 p.m., Sacred Music. 12.30, Bilhomquet—Aviator. 12.45, Press Review, News and Weather. 1.0, Light Music on Gramophone Records. 3.0 to 5.0, Programme in English by the I.B.C. 3.0, Orchestral Concert, Mr. T. St. A. Ronald announcing. Pageant March (Finck); Selection from The Bohemian Girl (Balfe); Selection from Tom Jones (German); Waltz from The Student Prince (Romberg); Selection, The Thistle (Myddleton). 3.30, Concert of Gramophone Records. 4.0, Tea-Time Variety Hour, Mr. S. H. C. Williams announcing. 5.0, Gramophone Concert: Menuet antique (Ravel); Two Airs from La Danseuse de Tanara (Hirschmann); Impressions d'Italie (Charpentier); Song of the Flea (Mussorgsky); La Nuit ensoleillée (Chopin); Marche écossaise (Debussy). 7.0, Variety Concert. 8.0, Radio Paris Circus. 8.30, News, Sports Notes and Weather. 8.40, White Horse Inn—Musical Play (Benatzky), relayed from the Théâtre Mogador. In an interval, at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—10.0 p.m., Dick Daring, from **New York.** 10.15, Symphonette, from **New York.** 10.30, Vesper Services, from Shadyside Presbyterian Church. 11.30, Pages of Romance, from **New York.** 12.0 **Midnight,** Programme to be announced. 12.15 a.m. **(Monday),** Time Signal. 12.16, Weather Report. 12.17, Teaberry Sport Review. 12.22, Press News Reeler. 12.29, Temperature Report. 12.30, Brahms Anniversary Programme, from **New York.** 1.0, Time Signal and Jack Pettis and his Orchestra. 1.30 to 3.45, **New York** Relay. 1.30, Great Moments in History. 2.0, The Land where the Good Songs go. 3.0, Twenty Thousand Years in Sing Sing. 3.30, Walter Winchell. 3.45, Pickens Sisters. 4.0, Phil Dewey and his Fireside Songs. 4.15, Lopez and the Two Doctors' Comic Congress. 4.45, Don Lucas—Pianoforte Opera. 5.0, Time Signal. 5.1, Teaberry Sport Review. 5.11, Temperature Report. 5.12, Weather Report. 5.15, Press Last Minute News. 5.20, Alexander Roy (Tenor). 5.30, Jesse Crawford (Organist), from **New York.** 6.0, Time Signal and Goodnight.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—11.0 a.m., Concert by the Station Orchestra, conducted by Jeremias. 12 Noon, Chimes. 12.5 p.m., See **Brno.** 1.30, Agricultural Report. 1.45 Social Report. 4.0, See **Moravska-Ostrava.** 5.30, Talk. 5.45, Light Music on Gramophone Records. 6.0, German Transmission: Die schöne Rosamunde (Fontane-Veidl); Recitation to Pianoforte Accompaniment, followed by News in German. 7.3, Variety Programme. 8.0, Concert by the National Guards Band. In the interval at 9.0, Time Signal. 10.0, Time Signal. 10.1, News Bulletin. 10.20, Jazz for Two Pianofortes. 11.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.: **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.**—9.55 a.m. (from **Geneva**). Chimes. 10.0 (from **Neuchatel**), Protestant Service Relay. 11.0 (from **Lausanne**), Concert by the Radio Lausanne Quintet and a Village Orchestra, conducted by E. Moser. 12 Noon (from **Lausanne**). Reading. 12.30 p.m., News and Weather. 12.40 to 2.0, Programme from **Lausanne.** 12.40, Gramophone Concert of Light Music. 1.30, Concert of Light Music. 2.0 to 3.30, Interval. 3.30 to 5.30 (from **Lausanne**), Orchestral Concert. 6.30 (from **Geneva**). Protestant Address. 7.0 (from **Fribourg**), Organ Recital from St. Nicholas Cathedral. 7.40 (from **Geneva**), Sports Notes and News. 8.0 (from **Geneva**), Ballads for Violin and Pianoforte. 8.30 (from **Lausanne**), Lilac-Time—Operetta (Schubert-Berté), relayed from the Municipal Theatre. News and Weather in the interval. 11.45 (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres** and **2RO, 11,810 kc/s, 25.4 metres.**—9.50 a.m., News, Sports Notes and Amusement Guide. 10.30, Agricultural Report. 11.0, Awarding of the Mussolini Prizes of the Accademia d'Italia. 11.45, Bible Reading. 12.20 p.m., Variety Concert. 1.30 to 2.30, Orchestral Concert. In the interval, at 2.0, Time and Announcements. 3.45, **(Naples)** Programme for Children, followed by Weather and Sports Notes. 4.0 to 6.15, Orchestral Concert. Sports Notes in the interval. 7.30, Football Report. Dopolavoro Notes and News. 8.0, Time and Announcements. 8.15, Song Recital. 8.30, Sports Report. 8.45, The Girl in the Taxi—Operetta (Gilbert). In the intervals: Reading and Talk on Science. News after the Operetta.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** and by **W2XAD** (See Short-Wave List).—8.0 to 10.30, **New York** Relay. 8.0, Clyde Doerr and his Saxophone Octet. 8.15, International Radio Forum. 8.30, Joe Green and his Marimba Band. 9.0, Wayne King's Orchestra. 9.30, Hour of Worship. 1.0 a.m. **(Monday),** Dr. Frank Sill Rogers (Organist). 1.15, Wheatena Ville—Sketch. 1.30, Horse Sense Philosophy. 1.45 to 3.30, **New York** Relay. 1.45, Smith Brothers' Programme. 2.0, Chase and Sanborn Hour. 3.0, General Electric Circle Sunday Concerts. 3.30, American Album of Familiar Music, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

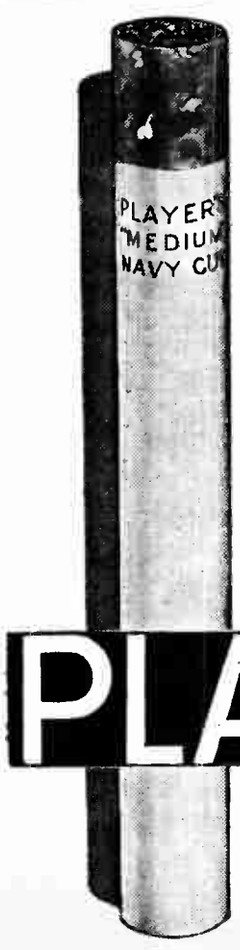
BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s,; 245.9 metres.**—10.0 a.m. to 12 Noon, Programme from **Berne.** 10.0, Protestant Address. 10.45, The Brandenburg Concerto No. 3 (Bach) on Gramophone Records. 10.55, Recital of Hebrew Melodies. 11.20, Reading. 11.50, Recital of Swiss Songs to Words by Gottfried Keller. 12 Noon, Concert by the Radio Orchestra. 12.28 p.m., Time and Weather. 12.30, News. 12.40, Concert (contd.). 1.30 to 2.30, Programme from **Berne.** 1.30, Song Recital by a Yodel Double Quartet. 2.0, Talk on Horticulture. 3.30 to 5.0 (from **Berne**), Extracts from Faust—Opera (Gounod). 6.20 (from **Berne**), Talk: The French Novel from 1910 to 1930: Loti and his Contemporaries. 7.0, Time and Weather. 7.3, Sports Notes. 7.10 (from **Berne**), Talk on Swiss Songs, with Illustrations. 7.50, Concert by the Radio Orchestra. 8.10 (from **Berne**), Part Relay of the Concert by the Cecilia Women's Choir and the Harmonie Male Voice Choir. 8.45, Orchestral Concert (contd). 9.5 (from **Berne**), Violin Recital. 9.30, Weather and News. 9.40 (from **Berne**), Popular Concert by the Ticino Choral Society and the Berne Mandoline Club. 10.15, Sports Notes. 10.25 (approx.), Close Down.

SOTTENS. See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—11.0 a.m., Divine Service Relay. 12.45 p.m., Weather and Ice Report. 2.0, Symphony Concert, conducted by Georg Schnevoigt, relayed from **Malmö, 1,301 kc/s, 231 metres.** 3.30, Choral Concert, conducted by Martin Lidstam. 4.0, Temperance Talk. 4.30, Popular Music on Gramophone Records. 5.30, Introductory Talk to the 8.15 Transmission.

APRIL 23rd **SUNDAY** *continued*



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APRIL 23rd SUNDAY *continued*

6.0, Evensong Relay. 7.15, Weather and News. 7.30, Sports Notes. 7.50, Violin Recital by Olaf Nielsen: Andantino (Martini); La précieuse (Couperin); Larghetto (Grétry); Sonata in G Minor (Tartini). 8.15, Lady Windermere's Fan: Play in Four Acts (Oscar Wilde). 9.45, Weather and News. 10.0, Concert of Light Music. 11.0 (approx.). Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**9.30 a.m.,** Protestant Service in German, relayed from the Reform Church. **10.30,** Part Relay of a Catholic Service. **11.0,** Concert by the Harmonie des Mines de Liévin, relayed from **Gand.** Conductor: C. Naninck. **1.0 p.m.,** Time and News. **1.15,** Agricultural Talk. **1.30,** Report on the Grand Prix Motor Race from Monte Carlo. **2.30 to 3.0,** Interval. **3.0,** Gramophone Concert of Variety Music. **4.0,** Quintet Concert, relayed from **Radio Coloniale (Paris), 15,243 kc/s, 19.68 metres.** **5.0,** Concert of Chamber Music. Soloists: Mlle. Schmidt-Derkum (Contralto), Caron (Oboe), Poyet (Horn), and Halter (Pianoforte). Songs, Dances of Death (Mussorgsky); Trio for Oboe, Horn, and Pianoforte (Herzogenberg); Melody (Borodin); Les Larmes (Tchaikovsky); Good Night (Rubinstein); Berceuse (Gretchaninov); Three Pieces (Rimsky-Korsakov). **6.0,** Medical Talk in German. **6.15,** Sports Notes. **6.30,** Mandoline and Hawaiian Guitar Concert, relayed from Thionville. **7.30,** Time and News. **7.45,** Harpsichord Recital by Mme. Roesgen Champion, on Gramophone Records. **8.15,** Press Review in German and Lottery Results. **8.30,** Thomas Stoltzer—Dialect Play in Three Acts (Ernest Fuchs), with Music by Alphonse Gross. In an interval, Press Review in French. **10.30,** Dance Music from the Savoy. **12 Midnight** (approx.). Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**11.30 a.m.,** See **Leipzig. 12 Noon** (from **Freiburg**). Open-air Band Concert. **1.0 p.m.,** Topical Talk. **1.15,** Song Recital by Julius Patzak on Gramophone Records. **2.15,** Agricultural Talk. **2.40** (from **Karlsruhe**). Concert by the Sölfingen Zither Quartet. **3.0,** Songs by Munich Composers.—Recital by Li Mörike. **3.30,** See **Frankfurt. 4.30** (from **Mannheim**). Concert by the Mannheim Philharmonic Orchestra, conducted by Hans Leger. **6.50,** An Entertainment on Gramophone Records. **7.20,** 'Cello and Pianoforte Recital by Willy Esterl and Thea Bischoff-Esterl): Sonata in G for 'Cello and Pianoforte (Sammartini); Suite for 'Cello and Pianoforte (Kunsemüller); Variations on a Theme by Händel for 'Cello and Pianoforte (Beethoven). **8.0,** Concert of Operetta Music by the Baden-Baden Orchestra, relayed from **Baden-Baden;** Conductor: Karl Assmus. **9.0,** Das Narrenschneiden—Carnival Play (Hans Sachs). **9.30,** Song Recital by Sepp Summer. **10.0,** Time, News, Weather, Programme Announcements, and Sports Notes. **10.30,** Serenade by the Stuttgart Philharmonic Dance Band. **12 Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—**12.15** p.m., News and Exchange. **12.30,** Catholic Service. **1.0,** Operetta Music. **1.15,** Popular Songs. **1.30,** Music by a Viennese Orchestra. **1.45,** Protestant Service. **2.15,** Picture Transmission. **2.20,** News Bulletin. **2.30,** Music by a Viennese Orchestra. **3.0,** Popular Songs. **3.15,** News and Racing Results. **3.20,** Instrumental Solos. **3.30,** Symphony Music for Orchestra. **4.0,** Airs from Opéra-Comique. **4.15,** Racing Results and News. **4.20,** Songs from Operettas. **4.30,** Dance Music. **5.0,** Songs from Sound Films. **5.15,** News and Racing Results. **5.20,** Military Band Music. **5.30,** Le Couronnement de la muse du peuple, for Orchestra (Charpentier). **5.45,** Songs from Operettas. **6.0,** News Bulletin. **6.15,** Accordion Solos. **6.30 to 7.0,** Programme in English by the I.B.C. Concert of Dance Music: Becky play your Violin; Sitting in the Dark; What Would You Like for Breakfast?; Standing in the Corner; Butterflies in the Rain; Happy Times; When you've fallen in Love; Selection from Waltzes from Vienna (Joh. Strauss). **7.0,** Popular Songs. **7.15,** News and Racing Results. **7.25,** Local News. **7.30,** Orchestral Music. **8.0,** Arias from Opera. **8.15,** Mandoline Music. **8.30,** Spanish Songs. **8.45,** Opéra-Comique Potpourris. **9.0,** Extracts from La Basoche, Opéra-Comique (Messager). **9.40,** Viennese Music. **10.0,** Opéra-Comique Songs. **10.15,** North African News. **10.30 to 12 Midnight,** Programme in English by the I.B.C. **10.30,** Half-an-hour of Variety: Happy Days are here again; Kathleen Mavourneen; On with the Show; Girls of the Old Brigade; Killarney; The Old Contemptibles' Reunion; The Gentleman, Please. **11.0,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: Medley of British Songs; To you it's only Ireland; My Baby just cares for Me; Selection from H.M.S. Pinafore (Sullivan); Phil the Fluter's Ball (French); Come to me (de Sylva); Waltz The Blue Danube (Joh. Strauss). **11.30,** Dance Music: Round about Sundown; Try a little Tenderness; Someone to care for; So ashamed; When anybody plays or sings; One Hour with you; Every Woman thinks she wants to wander; We will always be Sweethearts. **11.57,** I.B.C. Goodnight Melody. **12 Midnight,** News and Weather. **12.5 a.m. (Monday),** Hawaiian Guitar Music. **12.15,** Pasodobles. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**9.40 a.m.** See **Turin. 9.55,** Mass from the Cathedral of San Giusto. **11.0,** Religious Address. **11.20 to 11.40,** Agricultural Talk. **12.30 p.m.** (approx.) till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 95[illegible] kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**9.40 a.m.,** Giornale Radio. **9.55,** See **Trieste. 11.0,** See **Rome. 11.45,** Talk. **12 Noon to 12.15 p.m.,** Bible Reading. **12.30,** Gramophone Concert. In the interval, at **1.0,** Time and Announcements. **1.30 to 2.30,** Variety Concert. **4.0,** Orchestral Concert; Sports Notes in the interval. **6.15 to 6.30,** Sports Report. **7.0,** Time and Dopolavoro Notes. **7.10,** Gramophone Records of Variety Music. **8.0,** Giornale Radio and Sports Notes. **8.20,** Gramophone Concert. **8.45,** Theatre Talk. **9.0,** Variety Programme. **10.0,** Talk. **10.15,** Variety Music. **11.0,** Giornale Radio.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—**10.20 a.m.,** Concert of Contemporary Austrian Songs. **11.0,** Talk on New German Literature. **11.30,** Concert of Austrian Music by the Vienna Symphony Orchestra, conducted by Dr. Rudolf Weirich. **12.45 to 2.0 p.m.,** Concert of Modern Austrian Operetta Music by the Alois Dostal Orchestra. **3.0,** Time and Programme Announcements. **3.5,** Review of Books. **3.30,** Chamber Music by the Sedlak-Winkler Quartet: Variations from the String Quartet in C (Georg Reinund); Quintet for Pianoforte, Clarinet, Violin, Viola, and 'Cello (Franz Schmidt). **4.30,** Recital of Austrian Folk Songs. **5.0,** Concert by the Vienna Philharmonic Orchestra, conducted by Robert Heger, relayed from the Musikvereinssaal: Symphony in G Minor (Mozart); Adagio from the Eighth Symphony (Bruckner); Leonora Overture, No. 3 (Beethoven). **6.15,** Talk: A Day with the Tuaregs. **6.45,** Valerian Tornius reads from his own Works. **7.15,** Time, Sports Notes, and Programme Announcements. **7.30,** Part Relay of the Workers' Symphony Concert. **8.10,** In Praise of Music—Concert by the Vienna State Opera Choir and the Symphony Orchestra, conducted by Oswald Kabasta. Soloists: Berta Kiurina (Soprano) and Paul Hartmann (Speaker): Macht des Gesanges (Schiller); An die Musik (Schubert, arr. Reger); Wer die Musik in Ehren hält (Johann Krieger); Alles vergeht, Musik besteht (Rudolf Alle); Von der edlen Musik (Valentin Rathgeber); Aria from the Ode for St. Cecilia's Day (Handel); Choral: Dir, Tonkunst. Preis und Dank from Alexander's Feast (Handel); Die Wunder der Tonkunst (Waekenroder); Die Musik ist ein' irdisch' Seligkeit (Rathgeber); Mein' Freundschaft ist Frau Musika (Valentin Haussmann); Hymn to Song (Reger). **9.0,** Concert of Classical Viennese Folk Music by the Josef Holzer Orchestra. **10.15,** News. **10.30,** Dance Music by Austrian Jazz Composers.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Weather Forecast. **12.15,** Symphony Concert by the Warsaw Philharmonic Orchestra. In the interval, Talk on Studying at Home. **2.0,** Veterinary Talk. **2.20,** Concert by the Kudejar Orchestra and W. Horowicz (Songs). **2.40,** Talk. **3.0,** Agricultural Notes and Weather Report. **3.5,** Concert by the Kudejar Orchestra (contd.). **4.0,** Programme for Children. **4.25,** Light Music on Gramophone Records. **4.45,** Talk relayed from **Lwow, 788 kc/s, 381 metres. 5.0,** Variety Music by the Warsaw String Quartet. In the interval, Announcements. **5.55,** Programme Announcements. **6.0,** Dance Music relayed from the Café Ziemianska. In the interval, News. **7.0,** Miscellaneous Items. **7.55,** Programme relayed from **Lwow. 8.0,** Variety Concert: Songs by the Jurand Choir, Recitations to Music by L. Luskino and Saxophone Duets by A. Kwiecinsky and T. Kwiecinsky. **9.0,** Sports Notes. **9.10,** Concert by the Station Orchestra. **10.5,** Song Recital by Mme Emma Szabranska. **10.35,** Dance Music relayed from the Café Italia. **10.55,** Aviation Weather Report and Police Notes. **11.0,** Dance Music relayed from the Bodega Dance Hall.

ZURICH.—See **Schweizerischer Landessender.**

MONDAY

APRIL THE TWENTY-FOURTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Mr. Winston Churchill at the annual banquet of the Royal Society of St. George.
LONDON REGIONAL	Shakespeare Birthday celebrations, speeches from Stratford-upon-Avon. Brahms choral and orchestral concert.
MIDLAND REGIONAL	The Pageant of Gloucestershire.
WEST REGIONAL	Orchestral concert from the National Museum of Wales.
BELFAST	Light orchestral concert.

ABROAD

BUDAPEST	8 p.m. Oratorio: "Christus" (Liszt), conducted by Felix Weingartner, relayed from the Redoute.
EIFFEL TOWER	8.30 p.m. Extracts from Christiné's operettas.
FRANKFURT	9.5 p.m. Bruckner's Ninth Symphony (relayed also from **Stuttgart**).
HILVERSUM	3.55 p.m. William the Silent Festival, from Amsterdam. 7.40 p.m. Speech by President Roosevelt, from America.
LEIPZIG	8 p.m. Brahms evening.
MUNICH	7 p.m. German Destiny—German songs (relayed by other German stations. 8.5 p.m. Cantata: "La Vita Nuova" (Wolf-Ferrari), from the Tonhalle.
RADIO PARIS	8 p.m. Operetta: "La Fauvette der Temple," by Messager.
ROME	5.30 p.m. Concert by the Rome Quartet from the Royal Philharmonic Academy.
TURIN	9 p.m. Orchestral concert conducted by Ugo Tansini.

ATHLONE

725 kc/s, 413 metres; 60 kW., and Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** Talk: The Wonders of Sound. **8.0,** Organ Recital by F. Swanton, relayed from St. Bartholomew's Church. **8.30,** Contralto Solos by Ellis Deun. **8.50,** Pianoforte Recital by Rhona Clarke. **9.10,** Baritone Solos by A. O'Farrell. **9.20,** The Station Orchestra. **9.30,** Baritone Solos. **9.40,** Traditional Fiddle Music by C. MacFhionnlaoich. **9.50,** Soprano Solos. **10.10,** The Station Orchestra. **10.30,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

(EAJ1); 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert: Selection from Tannhäuser (Wagner); Lullaby from Don César de Bazán (Masseuet); Waltz Scherzo (Lladov); An den Frühling (Grieg). **7.30,** Quintet Concert, relayed from the Café de la Rambla. **8.30,** Sports Notes, Exchange, and Talk in Catalan. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange, and Market Prices. **10.5,** Humorous Review of the Week, in Verse. **10.15,** Concert of Sardanas. **11.0,** Concert by the Station Orchestra: Chaconne, from Orpheus (Gluck); Andante non Adagio (Stamitz); In a Chinese Temple Garden (Ketelbey); Hungarian Dance No. 7 (Brahms). **11.30,** Catalan Radio Gazette. **12 Midnight,** News Bulletin. **12.15 a.m. (Tuesday),** Quartet in E, No. 13 (Haydn), followed by Gramophone Records. **1.0 a.m.** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Notes, Tourist Report and Dopolavoro Notes. **8.20,** Giornale Radio and Weather. **8.30,** Time and Announcements. **9.0,** See **Turin.** In the interval, Talk: The Battle of Cannae. **10.30,** Light Music on Gramophone Records. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**4.30 p.m.,** Slovene Folk Songs. **5.0,** Dialogue in German. **6.55,** Time and Programme Announcements. **7.0,** Reading. **7.30,** Gramophone Records of Variety Music. **8.0,** Violin Recital by Prof. Milan Dimitrijevic. Sonata (Händel); Violin Concerto, Op. 82 (Glazunov). **8.45,** Concert by the Belgrade Academy of Music Choir. **9.15,** Orchestral Concert. Overture, Sakuntala (Goldmark); Suite, Peer Gynt (Grieg). **10.0,** News, followed by Cigány Music from the Potrosacka Zadraga Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**12.5 p.m.,** English Lesson for Schools, followed by Mozart Concert on Gramophone Records: Overture, Figaro; Aria from Figaro; Minuet from the Symphony in E Flat; Variations. Reich mir die Hand, mein Leben; Serenade from Don Juan; Turkish March; Song, Sehnsucht nach dem Frühling; Song, Warnung; Song, Schlafe, mein Prinzchen; Song, Das Veilchen; Brüder, reicht die Hand zum Bunde. Weather after the Concert. **1.45,** News Bulletin. **2.0,** Gramophone Concert from **Berlin (Witzleben).** **3.0,** Talk for Women: Making Children's Clothes. **3.30,** Weather and Exchange. **3.45,** Review of Books. **4.0,** Educational Talk. **4.30,** See **Berlin (Witzleben).** **5.10,** Talk: Culture and Industry in the German Colonies of Trans-Caucasia. **5.30,** Pianoforte Recital: Sonata in B Flat (Scarlatti); Sonata in C (Scarlatti); Variations in C Minor (Beethoven); Ecossaises (Beethoven); German Dances (Schubert). **6.0,** A Poem. **6.5,** Talk: The Origin and Meaning of Swastika. **6.30,** Talk: May the First and Social Democracy. **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations, relayed from **Munich.** **8.0,** See **Leipzig.** **9.45,** Topical Talk. **10.0,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Concert from **Leipzig.** **12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**3.30 p.m.,** Bach-Mozart Concert by the Drwenski Chamber Orchestra: Overture in B Minor for Strings and Flute (Bach); Three Sonatas for Two Violins, Bass and Organ (Mozart); (a) in D, (b) in A, (c) in C. **5.15,** Ten Minutes for the Music Lover. **5.25,** Talk: Exemplary Lives. **5.45,** Talk: The Dangers of Bathing in Unknown Waters. **6.5,** Talk by Gottfried Benn: The New State and the Intellectuals. **6.25,** Talk for the Seventieth Birthday of Arno Holz. **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Munich.** **8.5,** Concert by the Alfred Brox Orchestra, relayed from the Café Moka Efti. **8.30,** Announcements. **8.35,** Hours which made History—a Sequence of Historical Sketches: II, William of Nassau. **9.10,** At the Typewriter—Radio Sketch by Gerte Illing; Music by Karl Knauer. **10.0,** Weather, News, and Sports Notes. **10.15** (approx.), Orchestral Concert of Ballet Music; Conductor, Eugen Sonntag: Selection from Idomeneus (Mozart); Selection from Rosamund (Schubert); Airs from The Merry Wives of Windsor (Nicolai); Selection from Sleeping Beauty (Tchaikovsky). **11.20,** Orchestral Concert, conducted by Burle Marx. **12 Midnight** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 11 kW.—**5.25 p.m.,** Recital of Cigány Songs. **5.50,** Light Music on Gramophone Records. **5.55,** Two Sonatas for Violin and Pianoforte: (a) Sonata, Op. 10 (J. B. Foerster), (b) Sonata in A (César Franck). **6.55,** News. **7.0,** See **Prague.** **7.10,** Literary Review. **7.25,** See **Moravská-Ostrava.** **7.45,** See **Prague.** **8.0,** An Operetta (Blecha). **10.0,** See **Prague.** **10.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—1.10 p.m.,** Gramophone Concert: Selection from Il Trovatore (Verdi); Minuet and Allegretto from the Third Quintet in E (Boccherini); They call me Mimi, from La Bohème (Puccini); Waltz, Mattinata (Leoncavallo); Song from Gasparone (Millöcker); Rheinländer, Hans und Grete (Silwedel); Marine March; Infantry March. **1.45,** Time, Weather, News, Exchange and Shipping Notes. **2.5,** Gramophone Concert. **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Book Review. **4.0,** Topical Programme. **4.20,** Concert by the Station Orchestra. **5.30,** Market Prices. **5.35,** Legal Talk: Married Women and their Husbands' Debts. **5.55,** Talk: The University Student's Life to-day. **6.15,** Topical Programme (to be announced). **6.35,** Overture, Der Freischütz (Weber) on Gramophone Records. **6.50,** News. **7.0,** Transmission for all German Stations, relayed from **Munich.** **8.0,** Weather Forecast and Market Prices. **8.5,** Recital of New German Ballads. **8.50,** News. **9.0,** Four Centuries of Chamber Music—Concert by the Munich Viola Quintet: Fantasia in C Minor (Bach); Chanson (Sweelinck); Kyrie (Dufay); Canzone (Monteverdi); Canzone (Gnami); Canzone (Merulo). **10.0,** Time, Weather, News, Sports Notes, Market Prices and Programme Announcements. **10.25,** Answers to Correspondents on Technical Questions. **10.35,** Talk: The First Days at School. **10.55** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by B. Bakala. **5.10,** Programme for Young People. **5.20,** Book Review. **5.40,** Chess Lesson. **6.0,** Review of Gymnastics and Sports. **6.15,** See **Prague.** **6.25,** German Transmission: News, Elementary French Lesson and Talk on the Fine Arts Exhibition. **7.0,** See **Prague.** **7.25,** See **Moravská-Ostrava.** **7.45,** See **Prague.** **8.0,** See **Bratislava.** **10.0,** See **Prague.** **10.15** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R.; 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Concert by the Small Orchestra, conducted by P. Leemans: Pasodoble, Manuela del Rio (Lucchesi); Waltz, Toujours ou jamais (Waldteufel); La mia serenata (Staffelli); Selection from Tosca (Puccini); Jota and Tripoli (Lacôme); Hindu Song, from Sadko (Rimsky-Korsakov); Melody (Müller-Melborn); Selection from Monsieur Beaucaire (Messager); Waltz (Stolz); Simon (Moretti). **1.0 p.m.,** Le Journal Parlé. **1.10,** Light Music on Gramophone Records. **2.0,** Educational Programme. **5.0,** Concert by Mickey's Club Jazz Attraction. **6.0,** Talk: Naval Armaments. **6.15,** Gramophone Records: Kashmiri Song (Woodforde-Finden); Pianoforte Solo, Mephistopheles' Serenade (Berlioz); Two Airs from Thérèse (Massenet); At the Fair, from the Suite Russian Scenes (Bantock-Németi). **6.30,** Recital of Sonatas by MM. Pitsch and Scharrès: Sonata No. 2 (Fauré); Suite (Marais). **7.0,** Bach Music on Gramophone Records: Prelude in E Flat Minor; I call upon thee, Jesus; Toccata and Fugue. **7.15,** Talk: The Belgian Composer, Gossec. **7.30,** Theatre and Cinema Reviews. **8.0,** Accordion Recital by Eugène Hansen. **8.15,** Variety Programme. **8.45,** Mandoline Concert: Overture, La villanella rapita (Mozart); A Mediterranean Cruise (Jalowicz); Marche de l'Emir (Luigini). **9.15,** Talk: The Belgian Writer, Octave Pirmez. **9.30,** Concert by Mickey's Club Jazz Attraction. **10.0,** Le Journal Parlé. **10.10,** Concert (contd.).

BRUSSELS (No. 2)

N.I.R.; 887 kc/s, 338.2 metres; 15 kW.—Programme in Flemish. — **12 Noon,** Gramophone Concert of Light Music. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Little Station Orchestra, conducted by P. Leemans: The Phantom Brigade (Myddleton); Spanish Waltz (Mascheroni); Violin Solo, Meditation from Thaïs (Massenet); Selection from The Drum Major's Daughter (Offenbach); Dance of the Merry Mascots (Ketelbey); Der Rosenhochzeitszug (Jessel); Waltz (Hollaender); Selection from Eine einzige Nacht (Stolz). **2.0,** Educational Programme. **5.0,** Gramophone Records: The Seasons (Glazounov), conducted by the Composer; Rhapsody, España (Chabrier). **5.45,** Programme for Children. **6.30,** Concert by the Little Station Orchestra, conducted by P. Leemans. Soloist, Mme. L. Van Loock-Rensonnet. Hungarian Overture (Keler-Bela); Algerian Song (Ketelbey); Songs; Spanish Dance No. 8 (Sarasate); Selection from Etienne Marcel (Saint-Saëns); Songs; Aurore (Leemans); Ballet Suite (Popy). **7.15,** Poetry Reading. **7.30,** Le Journal Parlé. **8.0,** Concert by the Symphony Orchestra, conducted by Arthur Meulemans. Soloist, J. Van Poppel (Violin). Overture, Benvenuto Cellini (Berlioz); Concerto for Violin and Orchestra (Bruch); Hungarian Dances (Brahms). **8.45,** Talk: Physical Culture in Belgium. **9.0,** Concert (contd.): Cortège (Roels); Symphonic Poem for Pianoforte and Orchestra (Benoit); Violin Solos: (a) Rêve d'enfant (Ysaye), (b) Sérénade fantasque (Macs), (c) Liebesfreud (Kreisler); Overture and Suite for a Romantic Drama (Meulemans). **10.0,** Le Journal Parlé. **10.10,** Gramophone Dance Music.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Military Band Concert. In the interval at **6.0,** Radio Journal. **7.0,** Educational Programme. **7.55,** Time Signal. **8.0,** Quartet in A Minor (Schumann), by the Pro Arte Quartet. **8.30,** Vocal Tangos. **9.0,** Talk. **9.15,** Recital on Two Pianofortes: Les Eolides (Franck); Rhapsody in Blue (Gershwin). **9.45,** Radio Journal. **10.0,** Light Music and Romanian Music, relayed from a Restaurant.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW., and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time Signal and Chimes from the Town Hall. **12.2 p.m.,** Concert by the A. Bendix String Ensemble, relayed from the Wivex Restaurant. **2.0 to 3.20,** Interval. **3.20,** Talk for Housewives. **3.30,** Concert by Carl Rydahl's Instrumental Ensemble: Overture, Morning, Noon, and Night (Suppé); Waltz from Gipsy Love (Lehar); Selection from The Bird Fancier (Zeller); Cradle Song (Andersen); Minuet in Old Style (Burmester); Polka, Hostblomsten (Lumbye); Spanish Dance (Moszkowsky); Ballet égyptien (Luigini); Serenade (Rygaard); Selection from Cavalleria Rusticana (Mascagni); Wien, du Staut meiner Träume (Sieczynski); Grasshoppers' Dance (Bucalossi); Kunstnermarsch (Ryming). In the interval, Reading. **5.40,** Exchange and Fish Market Prices. **5.50,** Talk in French: Modern French Films. **6.20,** English Lesson. **6.50,** Weather. **7.0,** News. **7.15,** Time Signal. **7.20,** Talk: Spring Flowers. **7.30,** Talk on East Asiatic Problems. **8.0,** Time Signal from the Town Hall. **8.2,** Concert of Leo Fall's Music by the Radio Orchestra, conducted by Emil Reesen: March from Das Puppenmädel; Pompadour Waltz from Madame Pompadour; Selection from The Rose of Stamboul; March from The Dollar Princess. **8.35,** Reading: My Life Story (Hans Andersen), with Extracts from his Diary and Letters. **9.15,** Friedrich Kuhlau Pianoforte Recital by Folmer Jensen: Rondo on a Theme from Mozart's Figaro; Rondo on a Theme from Rossini's The Barber of Seville. **9.30,** Radio Pictures from Daily Life. **10.0,** News. **10.15,** Concert of Contemporary Danish Music by the Radio Orchestra, conducted by Emil Reesen: Symphonic Tone Pictures for Orchestra (Langgaard); Three Extracts from Palmerne—Poems by Sophus Michaelis for Recitation and Orchestra (Rosenberg); Bacchanale for Orchestra (Agersnap); Trio for Violin, Clarinet, and 'Cello (Koppel). **11.15** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**12 Noon,** Light Music on Gramophone Records. **12.30 p.m.,** News. **12.45,** Concert of Music from Sound Films. **5.30 to 7.0 p.m.,** Programme in English by the I.B.C. Announcers: C. Danvers-Walker, B. McNabb, and F. Lamping. **5.30,** Concert of Songs for Hastings and Easthourne Listeners: You're Calling me over the Sea; This is Heaven; Octet: (a) Extase, (b) The Piccaninnies' Picnic; Smiling Irish Eyes; On Top of the World; Octet: (a) Twilight on the Waters, (b) Träumerei; Dream Mother; Lily of Laguna; Octet: (a) The Butterfly, (b) Humoresque. **6.15,** Orchestral Concert for Chichester and Bognor Listeners: Intermezzo Selection (arr. Ancliffe); Vienna, Vienna (Foss); Valencia (Padilla); Violin Solos: (a) Because (d'Hardelot), (g) Song of Songs (Moya); Melody from The Woman in the Shoe; In the Night (Tate); Violin Solos: (a) Valse blnette (Drigo), (b) An Old Viennese Dance (Vogelein); Chinatown, my Chinatown (Schwartz); Memories of Paris (Christiné); Selection of Waltzes (arr. Ancliffe). **7.0,** Radio Gazette. **7.20,** Local News. **7.30,** Popular Music on Gramophone Records. **7.45,** The Listeners' Half-Hour, followed by News. **8.30,** Pierre Duffort Concert. **10.30,** till Close Down, Programme in English by the I.B.C. **10.0 p.m.,** Dance Music by the Decolians: In London on a Night like this; Without my Gal; Let me Sing and I'm happy; Sing a little Theme Song; Lorette; I still get a Thrill; Sing you Sinners; High

Society Blues; If anything happened to you; Gone; To my Mammy; When the little Red Roses; By your Side; Springtime in the Rockies; Yours sincerely. **11.0**, Orchestral Concert: The Blue Danube (Johann Strauss); Der Rosenkavalier-Walzer (Strauss); Columbine (Garland); Down in the Forest (Landon Ronald); At the Convent Gate (Johnson); Ich liebe dich (Grieg); In Pierrette's Garden (Brookes); Invitation to the Waltz (Weber). **11.30**, Concert by the Studio Chorus. Orchestra: The Phantom Brigade (Myddleton); Winter is gone; Sweetly blows the Breath of Spring; Selection from The Flower of Hawaii (Abraham); Ye Banks and Braes; Fill every Glass. Orchestra: Love in Cloverland (Peter). **12 Midnight**, Club Concert for Scilly Isles Listeners: Waltz, Gold and Silver (Lehar); Songs (Friml): (a) Only a Rose, (b) Song of the Vagabonds; Narcissus (Nevin); Songs: (a) A Brown Bird singing, (b) I love the Moon; Sobre las Olas (Rosas); Songs: (a) Dance away the Night, (b) Let me dream in your Arms again; The Wedding in the Ark; Song: Rollin' down the River; Xylophone Solo; Marionette (Gaston); Song: Violet Eyes and Cherry Lips; Bells across the Meadows (Ketelbey). **1.0 a.m. (Tuesday)**, Accordion Solos: March, Return of Johnnie; Reel, Mason's Apron; Jig, Rakes of Clonmel; Waltz, Mirella (Charlier); Medley of Scottish Airs; Blue Bells, Wee Macgregor Patrol; Medley of English Airs. **1.30**, Popular Songs: The First Weekend in June; I'm in the Market for you; Sweet Temptation. Orchestra: My Sunshine is you; I fell for you; Just like in a Story Book; Who Cares?; Orchestra: Good-night Sweetheart. **2.0**, Dance Music: Wanderer; Open up dem Pearly Gates; I don't want to go to Bed; Sailing on the Robert E. Lee; A Bedtime Story; Rock your Cares away; The London Fire Brigade; Nightfall; Strange Interlude; Me minus you; I guess I'll have to change my Plan; Same Old Moon; Brother can you spare a Dime?; I'll never have to dream again. **2.57**, I.B.C. Good-night Melody. **3.0** (approx.). Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres**; and **Trier, 1,157 kc/s, 259.3 metres.**—**4.30 p.m.**, Orchestral Concert. **5.50**, Economic Notes. **6.0**, Talk: William of Orange and his Native Province. **6.25**, English Lesson. **7.0**, Transmission for all German Stations, relayed from **Munich. 8.0**, Recital of Old German Folk Songs to the Lute. **8.30**, Till Eulenspiegel (Gerhardt Hauptmann); with a Prologue by Ottomar Enking, recited by Erich Ponto. **9.5**, Tenth Monday Concert of the Frankfurt Orchestral Society: The Ninth Symphony in D Minor (Bruckner), by the Frankfurt Symphony Orchestra, conducted by Hans Rosbaud. **10.0**, A German Almanac. **10.20**, Time, News, Weather, and Sports Notes. **10.30**, Paul Alverdes discusses his own Works. **10.45**, Dance Music by the Stuttgart Philharmonic Dance Band. **12 Midnight** (approx), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres**; **Flensburg, 1,319 kc/s, 227.4 metres**; **Hanover, 530 kc/s, 566 metres**, and **Kiel, 1,292 kc/s, 232.2 metres.**—**4.30 p.m.**, See **Breslau. 5.30**, Talk: Through the Sahara on a Motor Cycle. **5.55**, Recital of North German Folk Songs. **6.20**, Dialogue by Dr. Helmut Rinnebach and Dr. Eckardt on German Museums and Excavations. **6.40**, Exchange and Market Prices. **6.50**, Weather. **7.0**, Transmission for all German Stations, relayed from **Munich. 8.0**, Laughter—Literary and Musical Programme. The Station Chamber Orchestra, conducted by Gerhard Maasz. Freut euch des Lebens (Joh. Strauss); Reading; Selection from The Merry Wives of Windsor (Nicolai); Reading; Berlin wie es weint und lacht (Conradi); Reading; Fideles Wien (Komzak); Humorous Item; In lauschiger Nacht (Ziehrer). **9.0**, Announcements. **9.10**, Notker, der Deutsche—a Radio Play about Mediæval Life (Herbert Wilk), with Music by the Station Male Voice Choir. **10.10**, Time, Weather, Announcements, Sports Notes and Police Report. **10.20**, Topical Talk. **10.30** (from **Kiel**). Orchestral Concert, conducted by Hans Döring: Potpourri, Deutsche Marschperlen (Blankenburg); Overture (Hérold); Selection from Undine (Lortzing); Liebesgespräch (Schmalstich); Selection from Love's Awakening (Künnecke); Bolero from Don Quixote (Kienzl); Luxemburg-Walzer (Lehár); Chinesischer Märchenerzähler (Dreyer); Bauernsuite (Ailbout); March, Mit Standarten (Blankenburg).

HANOVER.—See **Hamburg.**

APRIL 24th MONDAY *continued*

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW., and **Danzig, 662 kc/s, 453.2 metres. 1.5 p.m.**, Light Music on Gramophone Records. In the interval at **1.20**, News. **2.30 to 3.0**, Interval. **3.0**, Agricultural Prices and Exchange Rates. **3.30**, Guessing Competition for Children. **4.0** (from **Danzig**). Songs to the Lute by Friedel Leopold. **4.20**, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Prinzessin Goldschuh (Rust); Liebesständchen (Wilcken); Liebszauber (Zimmermann); Selection from Boccaccio (Suppé); Waltz, Deutsche Grüsse (Jos. Strauss); Selection from Der Oberstelger (Zeller); Suite, Tibetan Sketches (Dreyer); Waltz, Abend in Wien (Krüger-Dinan); March, Heil Potsdam (Teike). In the interval at **4.50** (approx.), Talk: Memorable Days of the Week. **5.50**, Talk on German South-West Africa. **6.15**, Agricultural Prices. **6.25** (from **Danzig**), Danzig Programme—Stories and Poems in Danzig Dialect. **6.50**, Weather Report. **7.0**, Transmission for all German Stations, relayed from **Munich. 8.0**, News. **8.5**, Military Band Concert, conducted by Hermann Gareis: March, Dem Lenz entgegen (Blankenburg); Hubertus-Ouvertüre (Recking); Selection from Oberon (Weber); Minuet (Beethoven); Waltz, Lustiges Wien (Meisel); Der alte Berner Marsch (Schmeling); Badenweiler Marsch (Fürst); Jungdeutschland (Weninger); Fifteenth Century March; Sixteenth Century Drinking Song; Lobdied auf den Ostseestrand (Tuch); Potpourri of Humorous Drinking Songs (Riede); March, Der Gott der Eisen wachsen liess (Brase). **9.45**, English Lesson for Beginners. **10.15**, Weather, News and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**). Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.40 a.m.**, Organ and Gong Recital by Frans Hasselaar and Jaap Stotijn: Prelude and Fugue in G (Brahms); Choral (Bach-Rouher); Concerto in F Minor (Telemann); Cathedrales (Vierne); Die Schalmei (Herbst); Improvisation (Hasselaar). **12.40 p.m.**, Time Signal. **12.45**, Concert of Light Music by the Rentmeester Orchestra. In an interval, Gramophone Records. **2.55**, Interval. **3.10**, Popular Music on Gramophone Records. **3.55**, William The Silent Centenary Festival, relayed from the Concertgebouw, Amsterdam; The Concertgebouw Orchestra, conducted by Willem Mengelberg; Addresses by Dr. A. Roëll and H. Colijn. **5.10**, Concert of Light Music by the Kovacs-Lajos Orchestra; Songs by Bob Scholte and Magda van Donk. **7.10**, Book Review. **7.40**, William The Silent Festival, relayed from America: Speech by President Roosevelt. **8.10**, Talk: William of Orange. **8.40**, Time and News. **8.45**, In the Streets of Amsterdam—Relay of Street Noises, Barrel Organ Music and Songs. **9.25**, Concert by the Wireless Orchestra, conducted by Nico Treep; Soloist: Erich Fuchs (Bass): Overture, Der Wattenschmied (Lortzing); Song from Il Seraglio (Mozart); Aria from Figaro (Mozart); Rondo all' Ongarese (Haydn); Song from The Merry Wives of Windsor (Nicolai); Clog Dance (Lortzing); Arias (Lortzing) from (a) Undine, (b) Czar and Carpenter. **10.10**, Recitations. **10.30**, Concert by the Wireless Orchestra, conducted by Nico Treep: Overture, Orpheus in the Underworld (Offenbach); Selection from (a) I Pagliacci (Leoncavallo), (b) Mignon (Thomas); Waldreiteleigen (Weninger). In an interval at **10.40**, News. **10.55**, Popular Music on Gramophone Records. **12.40 a.m.** (approx.) **(Tuesday)**, Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW. Programme of the Christian Radio Society (N.C.R.V.).—**11.40 a.m.**, Concert by a Children's Choir, with Wind Instrument Accompaniment, relayed from Amsterdam. **1.10 p.m.**, Organ Recital by Jan Zwart. **2.40**, Broadcast for Schools. **3.10**, Dressmaking Lesson. **3.25**, Millinery Lesson. **3.40**, Popular Music on Gramophone Records. **3.55**, William the Silent—Memorial Programme, relayed from the Concertgebouw, Amsterdam. Addresses by A. Roell, J. M. Ruys de Beerenbrouck, and H. Colyn. **5.40**, Concert by the N.C.R.V. Orchestra, conducted by P. v.d. Hurk. **7.10**, Answers to Correspondence. **8.10**, Police Notes. **8.25**, Ecclesiastical Notes. **8.40**, William the Silent—Memorial Programme, relayed from the Groote Kerk, The Hague. Addresses followed by Musical Programme. Soloists: M. Bouwmeester (Soprano) and S. Swaap (Violin). **10.55**, News. **11.10**, Light Music on Gramophone Records. **12.10 a.m. (Tuesday)** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**3.0 p.m.**, News Bulletin. **8.10**, Sports Talk. **8.30**, Weather and News. **8.45**, Dramatic Programme. **12 Midnight to 1.0 a.m. (Tuesday)**, Programme in English by the I.B.C. **12 Midnight**, Light Music: Waltz, Roses from the South (Joh. Strauss); Träumerei (Schumann); In my Heart; Deep River; Albumblatt (Schumann); Romance; Lies; I know of two Bright Eyes; Waltz, Wine, Woman and Song (Joh. Strauss). **12.30 a.m.**, Military Band Music: Distant Greeting (Loring); National Emblem March (Bagley); The Thunderer (Sousa); Le Rêve passe (Krier); Old Comrades (Teike); King Cotton March (Sousa); Medley of British Songs; On the Quarter Deck (Alford). **12.57**, I.B.C. Good-night Melody. **1.0** (approx.). Close Down.

KALUNDBORG.—See **Copenhagen.**

KAUNAS

155 kc/s, 1,925 metres; 7 kW.—**7.30 p.m.**, Concert: Potpourri (Zimmer); Waltz, Toujours ou jamais (Waldteufel); Madrigalette (Bulleriau); Persian Scenes (Rust). **8.10**, Review of Foreign Affairs. **8.30**, Trio (Beethoven). **9.0**, Talk on Animals. **9.20**, Variety Programme. **9.40**, Sports Notes. **9.50**, Concert: Symphony in B Flat Minor (Schubert); Ballet Music from Rienzi (Wagner). **10.30** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 34 kW.; and **Helsinki, 315 kc/s, 368.1 metres.**—**6.15 p.m.**, Agricultural Report. **6.25**, Song Recital. **6.50**, Talk. **7.5**, Concert by the Station Orchestra. **7.45**, Talk. **8.10**, Music by Taneli Kmusisto—Part Relay of the Concert from the Conservatoire. Soloist: Eino Rantavaara (Songs), accompanied by the Composer. **8.45**, News in Finnish. **9.0**, News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon**, Concert of Light Music, conducted by Wolf: March, Heil Potsdam (Teike); Comedy Overture, Jocosa (Clemms); Cavatina (Raff); Selection from The Trumpeter of Sakkingen (Nessler); Waltz, Wiener Bürger (Ziehrer); Kálmán Potpourri, Fortissimo (arr. Feigel). **12.50 p.m.**, Weather, Time and News. **1.0**, Concert, conducted by Exsoldt: March, Fröhlich Pfalz Gott erhalt's (Gruss); Overture, Boccaccio (Suppé); Waltz, Flowers from Spain (Ailbout); Selection from Hamlet (Thomas); Two Pieces (Sinding): (a) Gavotte, (b) Grotesque March; Potpourri, Musikalische Trümpte (Noack); A Wedding Day on Troldhaugen (Grieg). In the interval at **2.0**, News Bulletin. **2.30**, Meat Market Prices. **3.30**, Exchange and Time Signal. **3.50**, Programme for Young People. **4.30**, Concert, conducted by Wolf. Soloist: Elfriede Kellner (Soprano). Overture, Der Wildschütz (Lortzing); Ballet Suite from Die Liebesprobe (Mozart); Soprano Solos: (a) Die rechte Stimmung (Telemann), (b) Die Mutter bei der Wiege (Schulz, arr. Reimann). (c) Die Sonne scheint nicht mehr (Folk Song), (d) Och Moder ich will en Ding han (Folk Song, arr. Brahms); Liebeslieder-Walzer (Brahms); Two Pieces (Reger): (a) Reigen, (b) Humoresque; Selection from The Gipsy Baron (Joh. Strauss); March, Für's Vaterland (Lehnhardt). **5.50**, Reading from Modern German Literature—Friderieus—A Sonnet (Götz Otto Stoffregen). **6.0**, Talk: German Women's Work in Eupen-Malmedy. **6.20**, Talk: Training in Physical Culture. **6.45**, Weather, Time, Exchange and Sports Notes. **7.0**, Transmission for all German Stations, relayed from **Munich. 8.0**, First General News. **8.5 to 10.5**, The Forest. **8.0**, Eichendorff Songs and Poems. **8.20**, Music by the Small Station Orchestra, conducted by Exsoldt. **8.40**, Die Fähre a Narrative (Manfred Hausmann). **9.0**, Music by the Small Station Orchestra (contd.). **9.20**, Staatsforst Distrikt 115—a Radio Picture of the West German Timber Trade (Martin Dey). **10.10**, News and Sports Notes. **10.30**, Programme from **Stuttgart. 12 Midnight**, Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**12 Noon**, Weather and Time Signal. **12.5 p.m.**, Gramophone Concert. **1.0** News, Weather and Time Signal. **1.15**, Gramophone Concert of Orchestral Music. Overture, Der Wildschütz (Lortzing); Turkish March (Mozart); Siegfried Idyll (Wagner); Prelude to the First Act of Palestrina (Pfitzner); Symphonic Poem, Op. 20; Don Juan (R. Strauss); Exchange Quotations after the Concert. **2.0**, Art and Cinema Notes. **2.30**, Jette in Spiegel a Short Story (Klara Schünemann). **3.35**, Market Prices. **4.0**, Talk: German Literature Plays of the Baroque Period. **4.30**, Vocal and Instrumental Concert, Pianoforte Solos: (a) Nocturne in D Flat (Chopin), (b) Liebestraum (Liszt); Soprano Solos: (a) Der Nussbaum (Schumann), (b) Frühlingsglaube (Schubert), (c) Das Veilchen (Mozart); Sonatina in D for Violin (Schubert); Pianoforte Solo, St. François d'Assise (Liszt); Mezzo-Soprano Solos: (a) Die Rose, from Zenier und Azor (Ludwig Spohr), (b) Song from Der schwarze Husar (Carl Reinecke), (c) Aria from Don Giovanni (Mozart); Prelude and Minuet from the Suite in A Minor for Violin (Max Reger). **5.30 to 5.55**, Weather and Time. **5.50**, Economic Notes. **6.0**, Educational Talk. **6.25**, Talk: Landscape and Subsoil. **6.45**, Programme to be announced. **7.0**, Transmission for All German Stations, relayed from **Munich. 8.0**, Brahms Concert by the Leipzig Symphony Orchestra. Conductor: Carl Schuricht. Soloists: Ilse Sachsenberg (Soprano), Dorothea Schröder (Contralto), Philipp Göpelt (Baritone), Wilhelm Ulbricht (Tenor), Theodor Blumer and Curt Hermann (Pianoforte). The Third Symphony in F, Op. 90; Quartets with Pianoforte accompaniment: (a) O schöne Nacht, Op. 92, No. 1, (b) Der Abend, Op. 64, No. 2, (c) An die Heimat, Op. 64, No. 4, Wechsellied zum Tanz, Op. 31, No. 1; Liebeslieder-walzer for Four Voices and two Pianists, Op. 52; Academic Festival Overture in C, Op. 80. **9.45**, Reading from Der Engelwirt (Emil Strauss). **10.15**, News. **10.30**, Concert of German Folk Music by the Concertina and Accordion Band, Four Violins and 'Cello; Suite in D Minor (Hermann Ambrosius); German Dances (Haydn). **11.0**, Concert by the Dresden Philharmonic Orchestra, conducted by Herbert Nerlich: Overture, Der Haideschacht (Von Holstein); Spanish Dance, Op. 22 (Alexander Fielitz); Tanz-szenen (Martin Richter); Selection from Tiefland (d'Albert); Meereswogen-Walzer, Op. 2 (Heinrich Zöbisch); Norwegian Dances, Op. 35 (Grieg). **12 Midnight**, Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 547.7 metres; 7 kW.—**5.30 p.m.**, Quintet Concert. **6.30**, Esperanto Lesson. **7.0**, Serbo-Croat Lesson. **7.30**, Talk on Hygiene. **8.0**, Talk on Music. **8.30**, Chamber Music. **9.0**, Time and News. **10.30** (approx.), Close Down.

LWOW

788 kc/s, 381 metres; 16 kW.—**7.0 p.m.**, Historical Talk. **7.15**, Announcements and Dance Records. **7.30**, See **Warsaw. 8.0**, Concert from Budapest. In the Interval at **9.15**, See **Warsaw. 10.15**, Talk. **10.30**, Popular Music on Gramophone Records. **10.55**, See **Warsaw. 11.30**, Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW. **7.30 p.m.**, Radio Gazette for Lyons and the South East. **8.45**, Instrumental Concert with Mlle. Yvonne Lefebvre (Pianoforte), and a Vocal Quartet, relayed from the Salle Molière.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.**, Concert of Popular Music. **11.45** (in the interval), Radio Chronicle. **12.35 a.m. (Tuesday)**, Sports and Bullfighting Notes. **12.40**, Light Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.**, Chimes, Exchange Quotations, Radio Journal, Sports Notes, and Talk. **9.15**, News Bulletin. **9.30** (approx.), Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,567 kc/s, 263.5 metres; 11 kW.—**6.30 p.m.**, German Transmission: Two Talks: (a) Stag Hunting, (b) The Age of Slogans. **7.0**, See **Prague. 7.25**, Chromatic Accordion Recital by R. Blaha. **7.45**, Talk on Czech Firemen. **8.0**, See **Bratislava. 10.0**, See **Prague. 10.15** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**6.30 p.m.**, Concert Relayed from the Radio Theatre. **8.0**, Talk in German: By whom and how will Moscow be governed? After the Talk, A Thousand Words of Russian. **9.0**, Talk in English: The Doctrines of Marx and Lenin. **9.55**, Time Signal. **10.5**, Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres**; and **Nürnberg, 1,256 kc/s, 239 metres.**—**4.30 p.m.** (from **Nürnberg**), Orchestral Concert, conducted by Markus Rümmelein: Overture, Il re pastore (Mozart); German Dances (Schubert); Andante sostenuto from the First Symphony (Brahms); Melody from The Veil of Pierrette (Dohnanyi); Selection from Iolanthe (Tchaikovsky). **5.45**, Talk: Intellectual and Artistic Life after the Napoleonic Wars. **6.5**, Talk: The Early History of Bavarian Cities. **6.25**, Recital of Gabriele von Lottner. **6.50**, Time, Weather and Agricultural Report. **7.0**, Transmission for all German Stations. German Destiny—German Songs—a Survey of Historical Folk Songs of the Seventeenth Century (Josef Wanninger-Karl Höller). **8.5**, La Vita Nuova—Cantata (Wolf-Ferrari), relayed from the Tonhalle. The Munich Philharmonic Orchestra, conducted by Adolf Meinerich, Two Choirs and Soloists: Martha Martensen (Soprano), Hans Heinz Hamer (Baritone),

Emmy Braun (Pianoforte) and Hermann Sagerer (Organ). 9.40, Humorous, Musical and Literary Programme. 10.20, Time, Weather, News and Sports Notes. 10.45, See **Stuttgart.** 12 **Midnight** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 816 kc/s, 365.8 metres; Hamar, 536 kc/s, 522 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.—5.0 p.m.,** Concert by the Radio Ensemble: Overture, Titus (Mozart); Valse lyrique (Sibelius); Melodies (Tchaikovsky); Hungarian Dance No. 6 (Brahms); Selection from La Bohème (Puccini); Mazurka, Beau Japon (Ganne); Minuet (Manning); Rondino (Beethoven); Melody (Svendsen); Indian War Dance (Lumbye). 6.0, German Lesson. 6.30, Theatre Review. 7.0, Announcements, Weather, and News. 7.30, Talk on Gardening. 8.0, Time Signal. 8.1, Concert; Fritz Müller (Flute), Albert Westang (Bass-Baritone), and Hildur Rösing (Pianoforte); Flute Solo; Hungarian Pastoral Fantasia (Doppler); Two Arias from St Paul (Mendelssohn); Pianoforte Solos. 9.10, Political Review. 9.40, Weather and News. 10.0, Topical Talk. 10.15, Concert in D, Op. 77, for Violin and Orchestra (Brahms) on Gramophone Records. 11.0 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 542 metres; 3 kW. **8.0 p.m.,** Dopolavoro Notes, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. 8.20, Popular Music on Gramophone Records. In an interval at 8.30, Time Signal and Announcements. 9.0, See **Turin.** After the Concert, Light Music on Gramophone Records. 10.55, News.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 10.26 a.m. and 11.0 p.m. (preliminary and six-dot Signals).—7.0 p.m., Le Journal Parlé. 8.20, Weather Report. 8.30, Extracts from Christine's Operettas: (a) Phi-Phi, (b) Dédé, (c) Madame. 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW. **6.45 p.m.,** Journal Parlé. 7.0, Hot Jazz on Gramophone Records. 7.30, Sponsored Concert. 8.0, Medical Talk. 8.5, Talk on Aviation. 8.30, Sponsored Concerts. 10.40, News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Light Music on Gramophone Records. 8.0, Press Review and Weather. 12 **Noon,** Concert by the Radio Paris Orchestra: Overture, The Siege of Corinth (Rossini); Selection from Don Carlos (Verdi); Gramophone Records: (a) Air from Il Trovatore (Verdi), (b) Chorus from Ernani (Verdi), (c) Tyrolienne from William Tell (Rossini); Intermezzo from the Fourth Act of Marion Delorme (Ponchielli); Entry of the Gods into Valhalla, from The Rhinegold (Wagner); Star of Eve, from Tannhäuser (Wagner); Selection from Antar (Dupont); Ballet Music from (a) Robert le Diable (Meyerbeer), (b) Phèdre (Massenet), (c) Le Tombeau de Couperin (Ravel). In the interval at 1.0 p.m., Exchange, News, and Weather; and at 1.30, Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.30, Elementary English Lesson. 6.50, Film Review. 7.5, Book Review. 7.20, Concert by the Radio Paris Orchestra: Spanish Dance No. 1 (Falla); Selection from Beaumarchais (Rossini - Cools); Aubade japonaise (Lachanme); Mignonnetta (Picheran). 7.45, Commercial Prices and News. 8.0, La Fauvette du Temple—Operetta (Messager). In the intervals, at 8.30, News and Weather; at 8.40, Review by Paul Reboux; and at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.—10.0 p.m.,** Work-a-day Thoughts. 10.5, Business News. 10.15, Programme to be announced. 10.30, Weather Report. 10.32, Market Report. 10.45, Lois Miller—Folk Songs. 10.57, David Lawrence Dispatch. 11.0, Programme to be announced. 11.15, Dick Daring, from **New York.** 11.30, The Singing Lady, from **New York.** 11.45, Little Orphan Annie. 12.0 **Midnight,** Booth Tarkington's Maude and Cousin Bill, from **New York.** 12.15 **a.m. (Tuesday),** Time Signal. 12.16, Weather Report. 12.17, Teaberry Sport Review. 12.22, Press News Reeler. 12.29, Temperature Report. 12.30, Programme to be announced. 12.45 to 4.0, **New York** Relay. 12.45, To-day's News by Lowell Thomas. 1.0, Pepsodent Amos 'n' Andy. 1.15, Tastyeast Jesters. 1.30, Five Star Theatre—Marx Brothers 2.0, Cliquot Club Eskimos. 2.30, Time Signal and Don Carney—Talk for Dog Lovers. 2.45, Phil Cook and the Ingram Shavers. 3.0, Sinclair Minstrels. 3.30, Jack Frost Melody Moments. 4.0, Programme to be announced. 4.15, The Keystone Songsters. 4.30, Bridge School of the Air by E. Hall Downes. 4.45, Pioneer Quartet, with Helen Bell Rush. 5.0, Time Signal. 5.1, Teaberry Sport Review. 5.11, Temperature Report. 5.12, Weather Report. 5.13, KDKA Artist Bulletin. 5.15, Press Last Minute News. 5.20, Dave Roberts—Left-handed Banjoist. 5.30, Jack Pettis and his Orchestra. 5.58, KDKA Artist Bulletin. 6.0, Hotel Bismarck Orchestra, from **New York.** 6.30, Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** See **Brno.** 5.10, Shorthand Lesson. 5.30, Programme for Children. 5.50, Variety Music on Gramophone Records. 6.5, Agricultural Report. 6.15, Talk for Workers. 6.25, News in German. 6.30, German Transmission Talk on Miracles. 7.0, Chimes. 7.1, News. 7.10, Elementary English Lesson. 7.25, See **Moravská-Ostrava.** 7.45, Talk: Reminiscences of an Actor. 8.0, see **Bratislava.** In the Interval at 9.0, Time Signal. 10.0, Time Signal. 10.2, News Bulletin. 10.15 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.: **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.—12.28 p.m.,** Time Signal from Neuchâtel Observatory. 12.30, News and Weather. 12.40 (from **Lausanne**), Gramophone Concert of Variety Music. 1.40 (from **Lausanne**), Financial News. 1.45 to 3.28, Interval. 3.28, Time Signal from Neuchâtel Observatory. 3.30, Concert by the Radio-Suisse Romande Quintet. 4.0 (from **Geneva**), Talk. 4.20, Concert (contd.). 5.0 to 6.0, Interval. 6.0 to 8.30, Programme from **Lausanne.** 6.0, Programme for Children. 6.30, German Lesson. 7.0, Weather and News. 7.30, Talk: Cocktails. 8.0, Flute and Pianoforte Recital. 8.30 (from **Geneva**), Monologues. 8.40 (from **Geneva**), Harp Recital by M. Vita. 8.55, Concert by the Radio-Suisse Romande Orchestra. 10.0, News and Weather. 10.15 (approx.), Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—**6.30 p.m.,** English Lesson. 7.0, Weather. 7.5, Orchestral Concert, conducted by J. Medins: Comedy Overture (Reznicek); Love Songs (Woodforde-Finden); Serenade in D Minor (Volkmann); Selection from Madame Butterfly (Puccini); Slav March (Tchaikovsky). 8.0, News. 8.20, Baritone Song Recital by Adolfs Kaktins. 8.40, Orchestral Concert (contd.): Mazurka (Glazunov); Ballad (Glazunov); Symphonic Suite (Garcin). 9.0, Weather and News. 9.30, Dance Music. 10.0 (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.—1.0 to 2.15 p.m.,** Gramophone Concert of Variety Music. In the interval, from 1.30 to 1.45, Giornale Radio and Exchange. 4.45, Children's Radio Review. 5.10, Announcements. 5.15, Exchange and Giornale Radio. 5.30, Concert by the Rome Quartet, relayed from the Royal Philharmonic Academy. Soloist: Lucio Lucci (Clarinet): Quintet in B Minor, op. 115 (Brahms); Quartet in E (Janssen); Quartet in F, op. 96 (Dvorak). 7.0 **(Naples),** Shipping and Sports Notes. 7.20, Giornale Radio. 8.0, Time, Announcements and Light Music on Gramophone Records. 8.15, Song Recital by Maria Valente (Soprano). 8.30, Sports Notes and Tourist Report. 9.0, See **Turin.** 10.0, Humorous Talk. 10.15, Orchestral Concert of Light Music. News after the programme.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** and by **W2XAD** (See Short-Wave List).—**7.30 p.m.,** Revolving Stage, from **New York.** 8.0, Talk, from **New York.** 8.15 to 8.30 (approx.), Grace Marcella Liddane—Mezzo-Soprano. 1.0 **a.m. (Tuesday),** Boy Scout Programme. 1.15, Stock Reports. 1.30, Upstaters (Male Quartet). 1.45 to 3.30, **New York** Relay. 1.45, The Goldbergs—Comedy Sketch. 2.0, Seconyland Sketch. 2.30, Musical Programme. 3.0, A and P Gipsies. 3.30, Musical Programme, from **New York,** followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER. 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.—12.28 p.m.,** Time Signal from Neuchâtel Observatory. 12.30, Weather and News. 12.40 (from **Basle**), Popular Swiss Music. 1.35, Weather and Exchange. 1.40 to 3.30, Interval. 3.30 (from **Basle**), Light Music on Gramophone Records. 4.30, Concert by the Small Station Orchestra. 5.0 to 7.0, Programme from **Zürich.** 5.0, Gramophone Concert of Variety Music. 5.45, A Radio Report in Dialect. 6.15, Light Music on Gramophone Records. 6.30, Talk on Everyday Philosophy: Mother Nature. 7.0, Time and Weather. 7.15 (from **Zürich**), Elementary English Lesson. 7.45 (from **Zürich**), Dialect Programme—Songs to the Lute and Orchestral Music. 9.30, Weather and News. 9.40, Concert by the Radio Orchestra, conducted by Hofmann. 10.15 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 436 metres; 55 kW. Relayed by **Boden, 1,229.5 metres; Göteborg, 322 metres; Hörby, 257 metres; Motala, 1,354.4 metres; Ostersund, 770 metres;** and **Sundsvall, 542 metres.—5.5 p.m.,** Accordion Music, relayed from **Gävle, 1,470 kc/s (204 metres).** 5.40, Health Talk. 5.55, Orchestral Concert: Overture, Das blaue Bild (Lincke); Waltz, Dreamland (Fahrbach); Meditation from Thaïs (Massenet); Le cygne (Saint-Saëns); Selection from Samson and Delilah (Saint-Saëns); Valse caprice, for Violin and String Orchestra (Wieniawsky); Potpourri, Servus Wien (Dostal). 6.55, Parliamentary Report. 7.15, Weather and News. 7.30, Talk: Swedish Pioneers in Africa. 8.0, Concert by the Radio Orchestra: Overture, Der Freischütz (Weber); Italian Suite (Kostal); Habanera (Chabrier); Waltz Fantasia (Glinka); Two Pieces for 'Cello and Orchestra (Delius): (a) Caprice, (b) Elegy Suite, Joyous Youth (Coates); March, Le père La Victoire (Ganne). 9.20, Reading. 9.45, Weather and News. 10.0, Popular Music on Gramophone Records. 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Gramophone Concert: Quintet in E Flat (Beethoven); Ballad No. 4 (Chopin); Dichterliebe (Schumann); Recitations: (a) A un enfant (Rostand), (b) La Statue (Rostand); Overture, Rosamunde (Schubert); Overture, Fingal's Cave (Mendelssohn). 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Variety Music on Gramophone Records. 2.0 to 5.0, Interval. 5.0, Orchestral Concert, conducted by Roskam; Soloist: M. Grégoire (Violin); Macedonian March (Millöcker); Waltz, Wiener Blut (Joh. Strauss); Two Alsatian Sketches (Gross); Overture, La Mascotte (Audran); Romance for Violin and Orchestra (Schneider); Selection from Madame Butterfly (Puccini-Bergha); Cantabile (Sporck); Waltz Intermezzo, Moss Rose (Bose); Marche des Saussfilistes (Pischeck). 6.0, Film Notes. 6.15, Talk in German: A Journey through Alsace. 6.30, Concert of Jazz Music, conducted by H. Roskam. 7.30, Time and News. 7.45, Chamber Music Concert; Daniel Hermann (Violin) and the Station Soloists: Quartet in E Minor for Flute, Violin, 'Cello, and Pianoforte (Telemann); Sonata No. 3 for Two Violins (Léclair, Sen.); Viola and Pianoforte: (a) Sarabande (Handel), (b) Largo (Clérambault), (c) Prière (Herrmann); Sonata for Violin, Viola, 'Cello, and Pianoforte (Leillet); Concerto for Three Violins and Pianoforte, L'allure (Carrotte). In an interval at 8.15, Press Review in German and Lottery Results. 9.0, Concert by the Venetia Mandoline Society, relayed from Ribeauvillé; Conductor, Paul Schmitt: Overture (Macciochi); Selection from La Traviata (Verdi); Ballet Scenes (Goldberg); Waltz, Rose de Mai (Larché); Fantasia, Dans la prairie (Julian); March, En giro al Sass (Sartori). In the interval, Press Review in French and Talk on Ribeauvillé. 10.20 (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.—12 Noon,** Gramophone Concert. 1.15 **p.m.,** Time, News, Weather, and Programme Announcements. 1.30 (from **Mannheim**), Recital of Soldiers' Songs, composed by Leopold Lenz, by Gustav Adolf Knörzer (Bass). 2.0 to 2.15, Musical Programme arranged by the Post Office. 2.30, Spanish Lesson. 3.0, Elementary English Lesson. 4.30, See **Munich.** 5.45, Time, Weather and Agricultural Report. 6.0, Talk: Traces of Primitive Peoples in the Primeval Forests of Amazonas. 6.25, See **Frankfurt.** 5.50, Time and News. 7.0, Transmission for all German Stations, relayed from **Munich.** 8.0, Viennese Waltz Music on Gramophone Records. 8.30, Programme for Ex-Servicemen. 8.50, Introductory Talk to the following Relay. 9.5, See **Frankfurt.** 10.0, Time, News, Weather and Programme Announcements. 10.20, Käthe Volkart-Schlager Song Recital by Brunhild Nöckesch (Soprano), with the Composer at the Pianoforte: Stiefmutter; Der eine allein; Wiegenliedchen Enzianblüte; Weisse Rose in der Dämmerung; Genesung; Wie der stöhnende Wind; Geheimnis; Wanderlied; Föhn. 10.50, Chess Lesson. 11.30, Serenade by the Stuttgart Philharmonic Dance Band. 12 **Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIOI, 779 kc/s, 385 metres; 8 kW.—**6.15,** 'Cello Solos. 6.30, Popular Songs. 6.45, Psyche: Symphonic Poem for Orchestra (Franck). 7.0, Songs. Dream from The Mastersingers (Wagner); Nature immense from The Damnation of Faust (Berlioz). 7.15, News. Racing Results, and Market Prices. 7.25, Local News. 7.20, Orchestral Music. 7.55, Songs. 8.0, Military Music. 8.30, Songs from Operettas. 8.45, Orchestral Music. 9.0, Spanish Concert. 9.30, Viennese Music. 10.0, Hawaiian Guitar Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco. 11.0, Popular Concert. 11.30 to 12 midnight, Programme in English by the I.B.C. W. Brown-Constable announcing. 11.30, Light Music; Fit as a Fiddle; Mistress fond and fair; Just a little House for the Old Folks; Venice; Butterflies in the Rain; Love will find a way; On Ilkla Moor; Night after Night. 11.57, I.B.C. Goodnight Melody. 12 midnight, News and Weather. 12.5 a.m. (Tuesday), Songs from Sound Films. 12.15, Argentine Music. 12.30 (approx.), Close Down.

TRIESTE

1,211kc/s, 247.7 metres; 10 kW.—**5.30 p.m.,** See **Rome.** After the Relay until Close Down. See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres 7 kW. Relayed by **Milan, 995 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres** and **Florence 599 kc/s, 500.8 metres.—5.20 p.m.,** See **Rome.** After the Relay; Giornale Radio and Agricultural and Dopolavoro Notes. 7.0, Time, Tourist Report and Gramophone Records of Variety Music. In the interval from 7.20 to 7.45, Giornale Radio. 8.0, Announcements, Giornale Radio, Weather and Gramophone Records (contd.). 8.45, Literary Report. 9.0, Orchestral Concert, conducted by Ugo Tansini. 10.0, A Comedy in One Act, followed by Gramophone Records of Variety Music. 11.0 (approx.), Giornale Radio.

VATICAN CITY

15.120 kc/s, 19.84 metres (Morning), and **5,969 kc/s, 50.26 metres (Evening);** 10 kW. **11.0 to 11.15 a.m.,** Religious Information in Italian. 8.0 to 8.15 p.m., Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg 1,373 kc/s, 218.5 metres.—3.20 p.m.,** Talk; The Singing and Pianoforte Competitions during Vienna Festival Week. 3.30, English Lesson. 3.55, Talk: Wagner in Vienna, Münich and Triebschen. 4.20, Programme for Children. 4.45, Talk: Sport in Antiquity. 5.0, Orchestral Concert. 6.15, Theatre Review. 6.35, Talk. 7.5, English Conversation Lesson. 7.30, Time, Weather and Programme Announcements. 7.40, Orchestral Concert. Soloists: Bobb and Berty (Two Pianofortes). Overture, Im Reiche des Indra (Lincke); Potpourri of Modern Opera and Orchestral Music (Recktenwald); Chinese Street Serenade (Siede); Selection from Fatinitza (Suppé); Viennese Song, Du lieber alter Stephasturm (Jurek); Potpourri, Perlen am Donaustrand (Uhl); March Foxtrot, Der Onkel Fridolin (Wiesmann). 8.40, Reading: Nächtliche Erscheinung. 9.5, News, Weather and Announcements. 9.20, Concert by the Vienna Symphony Orchestra, conducted by Dr. Paumgartner. Italy—A symphonic Sequence, with Introductory Talk and Commentary by Dr. Paumgartner. 10.30, Dance Music relayed from Hübner's Kursalon.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. 12.5 p.m., Programme Announcements. 12.10, Light Music on Gramophone Records. 1.20, Weather Forecast. 1.25 to 3.10, Interval. 3.10, Announcements. 3.15, Economic Notes. 3.25, Traffic Report. 3.35, Answers to Correspondence. 3.50, Light Music on Gramophone Records. 4.25, Elementary French Lesson. 4.40, Talk on the Economic Crisis. 5.0, Pianoforte Recital by Mme. Donska: Sonata in C Minor, Op. 10, No. 1 (Beethoven); Fantasiestücke, Op. 12 (Schumann); Caprice (Brahms). 5.55, Programme Announcements. 6.0, Educational Talk. 6.20, News. 6.25, Light Orchestral Music, relayed from the Cristal Restaurant. 7.0, Miscellaneous Items. 7.20, Agricultural Letter-box. 7.30, Topical Talk. 7.45, Radio Journal. 8.0, Talk on Music. 8.15, Concert from **Budapest.** In the interval, Radio Journal. 10.15, Technical Correspondence. 10.30, Sports Notes. 10.35, Popular Music on Gramophone Records. 10.55, Aviation Weather Report and Police Notes. 11.0, Dance Music, relayed from the Oaza Dance Hall.

ZURICH.—See **Schweizerischer Landessender.**

TUESDAY

APRIL THE TWENTY-FIFTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Military Band concert. Chamber music.
LONDON REGIONAL	The Ridgeway Parade.
WEST REGIONAL	Choral and orchestral concert from New Siloh Chapel, Landore.
SCOTTISH REGIONAL	Vocal and instrumental concert.
NORTH REGIONAL	Historic Cities of the North: Chester.

ABROAD

BARCELONA	10.30 p.m. "El Husar della Guardia," musical comedy by Vives and Jiménez, and "La Corte de Faraon," operetta by Lleo.
BERO-MUNSTER	7.55 p.m. Opéra comique: "Le Chalet," by Adam.
FECAMP	11 p.m. Welsh concert.
HEILSBERG	7 p.m. Danzig—an Experience (relayed by other German stations).
HILVERSUM	8.55 p.m. Brahms concert, conducted by Mengelberg, from Amsterdam.
LEIPZIG	8.15 p.m. Song competition from the Alberthalle.
STOCKHOLM	8 p.m. Concert from St. Peter's Church, Malmö.
VIENNA	7.25 p.m. Opera: "A Masked Ball" (Verdi), from the State Opera House.
WARSAW	5 p.m. Concert conducted by Fitelberg.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.**—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. 6.0, Popular Music on Gramophone Records. 6.15, Programme for Children. 7.0, British Market Report. 7.20, News Bulletin. 7.30, Time Signal. 7.31, Gaelic Talk. 7.45, Readings. 8.0, Concert of Dr. Annie Patterson's Music by the Station Orchestra, conducted by the Composer. 8.30, Violin Solos by Una Kenny. 8.45, Bass Solos by Irvine Lynch. 8.55, Talk on the Spring Show. 9.10, The Station Orchestra. 9.20, Bass Solos. 9.30, A Sketch by Elizabeth Young and Company. 10.0, Soprano Solos by Mme. McCaffery. 10.15, The Station Orchestra. 10.30, Time Signal. News, Weather Report and Close Down.

BARCELONA

Call EAJ1, 800 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert: Concerto No. 1 (Chopin); Serenata intermedio (Barbi); Consolation No. 3 (Liszt); Polonaise in F (Schubert). 8.0, Request Gramophone Concert. 8.30, Exchange Quotations and Talk on Art. 9.0, Light Music on Gramophone Records. 9.15, (in an interval), Talk on Football; after the Programme, News Bulletin. 10.0, Chimes from the Cathedral. Weather Forecast. Messages for Seamen, Exchange and Market Prices. 10.5, Sponsored Programme. 10.30, El Husar de la Guardia—Musical Comedy in One Act (Vives and Jimenez), followed by La Corte de Faraon—Operetta in One Act (Lleó). 12 **Midnight** (in an interval), News Bulletin. 1.0 **a.m. (Wednesday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Notes. Tourist Report and Dopolavoro Notes. 8.20, Giornale Radio and Announcements. 8.30 (approx.), Concert by the Bari Plucked String Quartet. Overture, Figaro (Mozart); Improvviso (Gentile); Suite, Spain (Giangreco); A Game of Chess—One-Act Comedy (Giacosa); Prelude to Act I of La Traviata (Verdi); Mattinata (Amadei); Fantasia, Fiori sparsi (Sartori); Idillio campestre (Amoroso); Foxtrot, Body (Amadei). 10.30, Popular Music on Gramophone Records. 10.55, News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**4.0 p.m.,** Folk Songs. 4.30, Pianoforte Recital. 5.0, Talk. 6.55, Time and Programme Announcements. 7.0, Concert of Slav Music by the Radio Orchestra. March (Andrejevic); Harem Songs from Die Reise um die Welt (Binicki); Peasant Dance, No. 1 (Golemovic); Selection from The Queen of Spades (Tchaikovsky); Waltz from Polubilut (Nedbal). 8.0, Programme relayed from **Zagreb, 977 kc/s, 307 metres.** 10.0, News, followed by Concert from the Imperial Hotel.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**2.0 p.m.,** Gramophone Concert from **Berlin (Witzleben).** 3.0, Technical Talk for Young People. 3.30, Weather and Exchange. 3.45 Reading (Christian Otto Frenzel). 4.0, Talks for Women. 4.30, See **Leipzig.** 5.10, Talk: Hunting Experiences in Masuria. 5.30, Zither Recital: Fantasia, Herbstklage (Max Albert); Minuet from the Sonatina in G Minor (Reigersberg); Romance (Edwin Schiffel); Graziella (Edwin Schiffel); Zigeunerständchen (Kollmaneck). 6.0, A Poem. 6.5, Talk on the Swastika. 6.30, Political Press Review. 6.50, Weather and Announcements. 7.0, Transmission for all German Stations, relayed from **Heilsberg.** 8.15 (approx.). See **Leipzig.** 10.0, Weather, News and Sports Notes. 10.45, Weather Report for Shipping. 11.0, Concert from Hamburg. 12 **Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.30 p.m.,** See **Leipzig.** 5.15, Talk on Scientific Research—Fifty Years of Experiment with the Cholera Bacillus. 5.30, Legends for Children. 5.50, Walter Neumann in a Pianoforte Recital of his own Works: Old China Suite, Op. 120: (a) The Little Shepherdess (Meissen), (b) Dancing English Peasant Couple (Old Chelsea), (c) Athenian Sacrificial Dance (Vienna), (d) Spring in Denmark (Copenhagen), (e) The Rice Bird (Japan), (f) The Little Dutch Belfry (Delft), (g) Beppo, the Serenader (Naples), (h) A Hunting Picture (Rosenthal), (i) The Chief Mandarin (China), (j) The Fountains of Sans-Souci (Old Berlin), (k) Madame La Marquise (Sèvres). 6.15, Review of Books on Sports. 6.45, Topical Talk. 7.0, Transmission for all German Stations, relayed from **Heilsberg.** 8.5, Concert by the Wilfrid Krüger Orchestra, relayed from the Trianon Restaurant. 8.35, Announcements. 8.40, Reading: Youth and the State—I. 9.0, Wolf-Bruckner Song Recital by the Bruno Kittel Choir and the Station Orchestra; Conductor: Bruno Kittel; Soloists: Cäcilie Reich (Soprano), Maria Peschken (Contralto); Walter Ludwig (Tenor), Herbert Alsen (Bass), and Johann Köhler (Organ): Morning Hymn (Wolf); Spring Chorus from the Unfinished Opera, Manuel Venegas (Wolf); Feuerreiter (Wolf); Te Deum (Bruckner). 10.0, Weather, News, and Sports Notes. 10.30, See **Hamburg.** 12 **Midnight** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

983 kc/s, 304 metres; 13 kW.—**6.15 p.m.,** Radio-Journal. 7.30, News and Exchange. 7.40, Talk for Women. 7.55, Lottery Results. 8.0, Topical Talk. 8.15, News. 8.30, See **Paris (Eiffel Tower).**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**5.25 p.m.,** Croatian Song Recital by Lelo Kratochvilova. 5.55, Popular Music on Gramophone Records. 6.20, Accordion Band Concert with Songs. 6.40, Light Music on Gramophone Records. 6.55, News. 7.0, See **Prague.** 10.15 Concert by the Station Brass Band, conducted by K. Nagl. 11.0 (approx.) Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.**—**1.10 p.m.,** Gramophone Concert: Egyptian March (Strauss); Invitation to the Dance (Weber); Minuet from Op. 11 (Brahms); Overture, The Merry Wives of Windsor (Nicolai). 1.45, Time, Weather, News and Exchange. 2.5, Wagner Concert on Gramophone Records: Duet from Lohengrin; Prelude to Tristan and Isolde; Soprano and Tenor Duet from the Third Act of Siegfried. 2.45, Programme arranged by the Post Office, with Gramophone Records. 3.10, Agricultural Prices. 3.40, Programme for Children. 4.10, Contralto, Violin and Pianoforte Recital: Five Pieces (Fielitz): (a) Die Zeit Verging, (b) Nun will ich mit dem Schicksal Frieden schliessen, (c) Nacht, (d) Die Vier, (e) Du mein See; La cancioncsa (Riess); Schlummerlied (Riess); Three Songs (H. Sommer): (a) Scherzigung, (b) Wanderers Nachtlied, (c) Mignon singt als Engel angetan; Romance in G (Beethoven); Minuetto giocoso (Lieban); Scherzo in E Flat Minor, Op. 4 (Brahms); Four Songs (Vollerthun): (a) Die Wünsche, (b) Der Esel, (c) Heimliches Ständchen, (d) Zweifel; Minuet (Beethoven); German Dance (Weber); Waltz in A (Brahms); Rondo alla Turca (Mozart). 5.10, Review of Books on Italian Fascism. 5.30, Eduard Reinacher reads from his own Works. 6.0, Topical Programme (to be announced). 6.25, Talk on Diving. 6.50, News. 7.0, Transmission for all German Stations, relayed from **Heilsberg.** 8.0, Concert of Bohemian Folk Songs by the Station Orchestra, the Station Choir and Soloists. 9.0, News. 9.10, Concert of Light Music by the Station Orchestra, conducted by Franz Marszalek: Variations in the Modern Style on Es kommt ein Vogel geflogen (Reckenwald); Bolero (Reinecke); Neapolitan Mandoline Players (Reinecke); A Musical Snuff-Box (Liadov); Variations for Violin, 'Cello and Viola on Ich muss wieder einmal in Grinzing sein (Leschetitzky); Serenata (A. Machetti); Humoresque for Flute (Zanke); The Dancing Violin (Hermann Löhr); Staccato Study for Glockenspiel and Wind Instruments (Streckc); Der Schrei nach der Fuge (Streckc). 10.10, Time, Weather, News, Sports Notes and Programme Announcements. 10.30, Political Press Review. 10.55, Theatre Talk. 11.5, Concert from **Hamburg.** 12 **Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**6.25 p.m.,** German Transmission: News, Medical Talk, Agricultural Report and Talk on Sowing. 7.0, See **Prague.** 7.10, 'Cello Solos by M. Svoboda. 7.25, See **Prague.** 10.15, See **Bratislava.** 11.0 (approx.), Close Down.

BRUSSELS (No.1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Tchaikovsky Concert on Gramophone Records: Valse-sérénade; Allegro con grazia from the Pathetic Symphony; Pourquoi? Polonaise from Eugene Onegin. 12.20 **p.m.,** Song Recital by Mme. Schulz. 1.0, Le Journal Parlé. 1.10, Concert by the Small Station Orchestra, conducted by P. Lemans; Part 1: Grieg Programme: Norwegian Bridal Procession; Morning; Anitra's Dance; Solveig's Song; Norwegian Dances; Part 2: Imitative Music: The Old Musical Box (de Séviac); The Sewing Machine (Lincoln); The Flight of the Bumble Bee (Rimsky-Korsakov); The Top (Gillet); The Cuckoo (Daquin); The Donkey and the Donkey-Driver (Leonard); The Enchanted Carriage (Ackermans). 5.0, Gala Programme for Children, relayed from the St. Servais College, Liége. 6.0, Literary Review. 6.10, Recital of Sonatas by Mlle. Funcken (Pianoforte) and M. Schreiden (Violin): Sonata in F (Grieg); Gramophone Record: Eine kleine Nachtmusik (Mozart); Sonata (C. Franck). 7.15, Report of the Belgian Catholic Radio Society and Cinema Review. 7.30, Talk for Women. 8.0, Concert by the Symphony Orchestra, conducted by J. Kumps; Soloist: M. Sottiaux (Violin): The Unfinished Symphony (Schubert); Pièce de concert (Vieuxtemps). 8.45, Talk. 9.0, Concert of Operetta Music by the Radio Orchestra, conducted by M. Walpot: Overture, Les Hirondelles (Hirschmann); Ballet Music from Véronique (Messager); Waltz from La Cocarde de Mimi Pinson (Goublier). 9.40, Mandoline Recital by Mme. Gin O'Deyn: Polish Song (Wieniawsky); Gipsy Melodies (Bohm); Sérénade des mandolines (Thiébaut); Saltarelle (Papini). 9.45, Concert (continued): Napilo from Impressions d'Italie (Charpentier). 10.0, Le Journal Parlé. 10.10, Request Gramophone Records: Overture, La Fille de Madame Angot (Lecocq); Chant du printemps (Gounod); Entr'acte and Barcarolle, from The Tales of Hoffmann (Offenbach); Arrêtez o mes frères from Samson and Delilah (Saint-Saëns); La Cocarde de Mimi Pinson (Goublier); Two Symphonic Dances (Coppola); Les chants de la mer (Gaubert). 10.55, Christus Vincit.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**12 Noon,** Concert by the Little Station Orchestra, conducted by P. Lemans. 1.0 **p.m.,** Le Journal Parlé. 1.10, Light Music on Gramophone Records. 5.0, Concert by the Symphony Orchestra, conducted by J. Kumps: Marche printanière (Filipucci); Eine kleine Nachtmusik (Mozart); Waltz Suite, Wiener Bonbons (Joh. Strauss); Pas des fleurs, from Naïla (Delibes); Bacchanale from Samson and Delilah (Saint-Saëns); Overture, Figaro (Mozart). 5.45, Programme for Children. 6.30, Jewish Programme. 7.15, Talk. 7.30, Tourist Talk. 8.0, Variety Programme. 10.0, Le Journal Parlé. 10.10, Variety Programme (contd.).

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Light Music and Roumanian Music by the Motor Orchestra. In the interval at 6.0, Radio Journal. 7.0, Educational Programme. 7.55, Time Signal. 8.0, Concert by the Station Orchestra: Manhattan March (Sousa); Suite, Mozartiana (Tchaikovsky). 8.30, Talk. 8.45, Song Recital, by Mme. Kozemi, with Accompaniment by the Station Orchestra: Song from The Magic Flute (Mozart); Senta's Ballad from The Flying Dutchman (Wagner); Ave Maria (Gounod); Mes baisers mentent (Jora). 9.5, Orchestral Concert (contd.); Concerto for Horn (Weber); Waltz from the Second Serenade (Volkmann); Waltz, Potpourri (Rohrecht). 9.45, Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **7.20 p.m.** till Close Down. **5.30 p.m.,** Concert by the Budapest Concert Society, conducted by Viktor Vaszy. Soloist: Magda Vasarhelyi. 7.0, Talk. 7.20, Song Recital by Anne Roselle; Aria from Louise (Charpentier); Chanson norvégienne (Fourdrain); Aria from Don Giovanni (Mozart); Torna amore (Buzzi-Peccia); Il bacio (Arditi); Hungarian Song (Kodaly); Two Hungarian Songs (Antaly Zsiros and Hubay). 10.30, News Bulletin, followed by Dance Music and Cigány Music from the Café Osterale. Soloist: Paul Kalmar (Songs).

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 269 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time Signal and Chimes from the Town Hall. 12.2 **p.m.,** Concert by the Harald Andersen String Ensemble, relayed from the Bellevue Strandhotel. 2.0 to 3.0, Interval. 3.0, Concert by Louis Preil's Instrumental Ensemble. Soloist: Ebba Nissen (Violin). March (Kreuzberger); Cuban Love Song (Stothart, Hugh and Fields); Sérénade italienne (Claudi); To maa man vaere (Henriques); Potpourri, Fahrt ins Blaue (Dorstal); Manhattan Serenade (Alter); Novelty Foxtrot, Dancing Stars; Violin Solos: (a) Larghetto (Händel-Hubay), (b) Pompée valsante (Poldini-Kreisler), (c) Romance (Sedström), (d) Melody (Tchaikovsky), (e) Mazurka (Wieniawsky); Pianoforte Novelty, Go on (Rawiez); Trees (Rasbach); Selection from Miss Denmark (Howalt); Melody (Fall); Waltz, Souvenir de Semmering (Lukesley); Auclito d'amore (Leoncavallo); My Gal Sal (Nicholls); March Foxtrot, Annemarie (Altdoff and Heinz). 5.0, Programme for Children. 5.40, Exchange and Fish Market Prices. 5.50, Talk. 6.20, German Lesson. 6.50, Weather. 7.0, News. 7.15, Time Signal. 7.30, Talk on Everyday Psychological Problems. 8.0, Time Signal from the Town Hall. 8.1, Joakim Skovgaard Memorial Festival, relayed from the Town Hall. 9.15, Flute and Harpsichord Recital by Erik Thomsen and Folmer Jensen. Sonata, No. 5, in E Minor, for Flute and Harpsichord (Quantz); First Movement from the Third Concerto, in C, for Flute (Frederick the Great). 9.35, Zigeunerprimas—Radio Play (Emma Schiller). 10.5, News. 10.20, Concert of French Ballet Music by the Radio Orchestra, conducted by Emil Reesen. Ballet Music from Les Indes galantes (Rameau); Ballet Suite (Grétry-Franko); Dances from Henry VIII (Saint-Saëns); Waltz and Czardas from Coppélia (Delibes). 11.5, Dance Music by the Jens Warny Dance Band, relayed from the Nimb Restaurant. In an interval at

12 Midnight, Time Signal and Chimes from the Town Hall. **12.30 a.m.** (approx.) **(Wednesday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,327 kc/s, 226 metres; 10 kW.—**12 Noon,** Concert of Military Music. **12.30 p.m.,** News. **12.45,** Vocal Concert. **5.30 to 7.0 p.m.,** Programme in English by the I.B.C. **5.30,** Announcers: C. Danvers-Walker, B. McNabb, and F. Lamping: Gilbert and Sullivan Concert for Torquay and Exeter Listeners: Selection from The Mikado; A Regular Royal Queen, from The Gondoliers; The Moon and I, from The Mikado; Brightly dawns our Wedding Day, from The Mikado; Selection from Iolanthe; Now let the loyal Lieges, from The Gondoliers; Take a Pair of Sparkling Eyes, from The Gondoliers; Selection from The Pirates of Penzance; When a merrie Maiden marries; Kind Sir, you cannot have the Heart. **6.15,** Military Band Concert for Plymouth and Devonport Listeners: La Grive (Cole); Viscount Nelson (Zehle); Ballad Memories (arr. Baynes); March, Pomp and Circumstance (Elgar); A Frangesa (Costa); New Colonial March (Hall); Selection from The Country Girl (Monckton); The Thunderer (Sousa); El Abanico (Javaloyes); Here, there, and Everywhere (Bosc). **7.0,** Radio Gazette. **7.20,** News. **7.30,** Light Music on Gramophone Records. **7.45,** The Listeners' Hour and News. **8.15,** Talk. **8.30,** Concert, relayed from **Le Havre. 10.0 p.m.** till Close Down, Programme in English by the I.B.C. **10.0 p.m.,** Dance Music by the Ibeolians: After the Party; Blue again; Bubbling over with Love; I'm yours; Nevertheless; Love for Sale; I believe in you; Hello, Beautiful; There's something in your Eyes; Sing; The Queen was in the Parlour; There's something about an Old-fashioned Girl; Springtime reminds me of you; My Sunshine came on a rainy Day; I found you. **11.0,** Welsh Concert: Welsh Medley (arr. Somers); Y Bugail; Alleluia; March of the Men of Harlech; Y Gwcw ar y Fedwin; My little Welsh Home; Britelodia Selection. **11.30,** Vocal Duets and Trios: Trio, Mia Bella Rosa; Leave the pretty Girls alone; Daybreak, Trio, Will you forget; 'Way down in Georgia; Sonny Boy; In an Old World Garden; Trio, A Night of Happiness. **12.0,** Midnight; Club Concert for Isle of Bute and Hebrides Listeners: A Sprig of Heather; Chorus: (a) The Drums, (b) Songs my Mother taught me; Invitation to the Waltz (Weber); Songs: (a) Bonnie wee Things, (b) Three Fishers went sailing; Pizzicato from Sylvia (Delibes); Little Things in Life (Berlin); Reaching for the Moon (Berlin); Violin Solo: John Anderson; The Capricious Music Box (Fresco); Chorus: Song Medley; Waltz, Acclamations (Waldteufel). **1.0 a.m. (Wednesday),** Concert by a Hawaiian Band: My South Sea Home (Carillio); Maria Mari (di Capua); Mari Girl (Libernie); O Sole mio (di Capua); Palikiko Blues (Trad); Hawaiian Love (Gaston); Somehow (Hackforth); Manilla Moon (Gaston). **1.30,** Popular Songs: Crying for the Carolines (Warren); Gypsy Melody (Nicholls); When you wore a Gingham Gown (Gilbert); Go Home and tell your Mother (McHugh); Old New England Moon; Wasn't it nice (Seymour); Say a little Prayer for me (Nicholls); Bye bye Blues. **2.0,** Dance Music by the Ibeolians: Somebody stole my Gal; So ashamed; Here's hoping; Southern Serenade; The wise old Owl said "Hoo"; What more can I ask; Love Tales; Brighter than the Sun; I'll follow you; Isn't it romantic?; Just an Echo in the Valley; A million Dreams; Mimi; A little Street where old friends meet. **2.57,** I.B.C. Good-night Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres.—4.30 p.m.,** Concert by the Station Orchestra, conducted by Reinhold Merten. Soloist: Wally Kirsamer (Soprano). Festival Overture, Op. 105 (Reinecke); Symphonic Poem, Torquato Tasso (Liszt); Three Songs (Liszt); Three Songs (Hugo Wolf); Old-Time Dance Music. **5.50,** Economic Notes. **6.0,** Talk: The Break-up of Asia and its Significance to Europe. **6.25,** Dialogue: Modern Methods of Fighting. **6.55,** Time, Programme Announcements, Weather and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Heilsberg. 8.0,** Singing Competition, to be judged by the Listeners. **9.0,** Topical Reports: (a) The Oberhessen Shepherds' Meeting, (b) A Shooting Competition. **9.45,** Pianoforte Sonata in B Flat (Schubert) by Hans Rosbaud. **10.10,** A German Almanac. **10.20,** Time, News, Weather and Sports Notes. **10.45,** See **Stuttgart. 12 Midnight** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FRIEBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

APRIL 25th TUESDAY *continued*

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres. 5.55 p.m.** (from **Bremen**), Programme for the Seventieth Birthday of Ernst Müller-Scheessel. **6.45,** Frankfurt Exchange and Hamburg Egg Market Prices. **6.50,** Weather Report. **7.0,** Transmission for all German Stations relayed from **Heilsberg. 8.0,** Talk by the East Prussian Author, Franz Lüdtke. **8.30,** Concert by the Station Orchestra, conducted by José Eibenschütz. Soloists: Adelheid Armhold (Songs) and Paul Moth ('Cello); Overture, Anacreon (Cherubini); Song, Non temer, amato bene (Mozart); Serenade in D for 'Cello and Strings (Volkmann); Songs (Schubert): (a) Im Abendroth, (b) Auf dem Wasser zu singen; German Dances (Schubert-Webern); Songs (Brahms): (a) Die Mainacht, (b) Felsteinsamkeit, (c) Die Botschaft; Dance Suite (Franckenstein); Songs (R. Strauss); (a) Wiegenlied, (b) Ständchen; Scherzo capriccioso (Scheffler). **10.0,** Time and News. **10.20,** Topical Talk. **10.30** (from **Hanover**), Concert by a Symphony Orchestra, conducted by Otto Ebel von Sosen: Overture, Der Haideschacht (Holstein); Tanz unter der Dorflinde, from Sommertagsbilder (Reinecke); Tanzspuk (Carl Schroeder); Selection from Der Trompeter von Säkkingen (Nessler); Rhapsody in B Minor, Op. 25 (Hartung); Torch Dance (Flotow); Variations on the Folk Song, 's kommt ein Vogel geflogen (Ernst Scherz); In der Waldschmiede (Eilenberg); Wedding March from The Pied Piper of Hamelin (Nessler).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.—11.30 a.m.,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken. Overture, Maritana (Wallace); Turkish Suite (Gauwin); Irrlichter-Walzer (Hampf); Selection from Das Dorf ohne Glocke (Künnecke). Two Airs from Cagliostro in Wien (Joh. Strauss); Fantasia, Wolgageister (Leutschner); Waltz, Sterngucker (Lehar); Overture, Fatinitza (Suppé). **1.5 p.m.,** Light Music on Gramophone Records. In the interval at **1.20,** News. **2.30,** Programme arranged by the Post Office with Gramophone Records. **3.0,** Agricultural Prices and Exchange Rates. **3.30,** Programme for Children. **4.0,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Albin (Flotow); Waltz, Wiener Weisen (Joh. Strauss); Krotschak (Recktenwald); Selection from Cavalleria rusticana (Mascagni); Almeria (Mahy); Selection from Ihre Hoheit, die Tänzerin (Goetze); Overture, Isabella (Suppé). **5.30,** Book Review. **5.50,** Reading: The Letters of Goethe's Mother to Bettina von Arnim. **6.15,** Agricultural Prices. **6.25,** Talk for Workers. **6.50,** Weather. **7.0,** Transmission for all German Stations. Danzig—an Experience. **8.5,** Chamber Music: The Königsburg String Quartet, Hanna Richtsmeier (Soprano), and Richard Kursch (Pianoforte). Songs (Trunk); String Quartet (Rudolph). Songs (H. Wolf). **9.10,** News. **9.20,** Talk, with Gramophone Records: The Call of the Steppes. **10.10,** Weather, News, and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—**11.10 a.m.,** Pianoforte and Song Recital by Gerda Brockhuizen and C. Versteeg. In an interval at **11.40,** Talk on Cookery. **12.40 p.m.,** Time Signal. **12.41,** Concert by the Wireless Orchestra, conducted by Nico Treep: Dem Lenz entgegen (Blankenburg); Overture, The Maid of Artois (Balfe); Aubade printanière (Lacombe); Amina (Lincke); Serenade (Moszkovsky); Selection from The Tales of Hoffmann (Offenbach); Gramophone Records; Pascalle (Chenca); An der schönen grünen Narenta (Komzak); Canzonetta (Godard); My curly headed Baby (Clutsam); Kirschblütenfest (Dicker); Selection from Paul et Virginie (Massé); Gramophone Records: El salnido (Ancliffe); Los novios (Dorlay); Selection from A Waltz Dream (O. Straus). **2.55,** Interval. **3.10,** Orchestral Concert (contd.): Lincke Music; Overture, Frau Luna; O, Frühling wie bist du so schön?; Selection from Die Meistersinger von Berlin; March, Garde Jäger zu Pferde. **3.40,** Dressmaking Lesson. **4.40,** Pianoforte Recital by Egbert Veen. **5.10,** Concert by a Children's Choir, conducted by Jacob Hamel. **5.40,** Programme for Children. **6.10,** Talk arranged by the Liberal Protestant Radio Society (V.P.R.O.). **6.40,** Popular Music on Gramophone Records. **7.10,** Electioneering Address. **8.10,** English Lesson. **8.40,** Time and News. **8.45,** Light Music on Gramophone Records. **8.55,** Brahms Concert by the Concertgebouw Orchestra, relayed from the Concertgebouw, Amsterdam. Conductor: Willem Mengelberg; Soloist, Elly Ney (Pianoforte): Tragic Overture, Second Pianoforte Concerto in B Flat. **9.55,** Radio Play. **10.25,** Concert of Light Music by the Kovacs Lajos Orchestra; Soloist, Bob Scholte (Songs). **11.40,** News. **11.50,** Popular Music on Gramophone Records. **12.40 a.m.** (approx.) **(Wednesday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**12.55 p.m.** till Close Down, Programme of the Catholic Radio Society (K.R.O.). **12.55,** Concert by the K.R.O. Sextet. **2.25 to 2.40,** Interval. **2.40,** Programme for Women. **3.40,** Popular Music on Gramophone Records. **4.0,** Song and Pianoforte Recital by C. van Munster (Baritone) and F. Meyer (Pianoforte). Baritone Arias from: (a) Tosca (Puccini), (b) The Girl of the Golden West (Puccini), (c) Le Cid (Massenet), (d) Martha (Flotow); Pianoforte Solos: (a) Mazurka, No. 2 (Godard), (b) Slav Rhapsody (Friedmann), (c) Fantasia, No. 3 (Benoit); Light Music on Gramophone Records; Baritone Solos: (a) Aria from Samson (Händel), (b) To Chloe (Mozart), (c) Wie berührt mich wundersam (Bendel), (d) Atys (Lully), (e) Cassandra (Bouvard and Bertin); Pianoforte Solos: (a) Selection from Tosca (Puccini), (b) Rustle of Spring (Sinding), (c) Polonaise, Op. 40, No. 1 (Chopin), (d) Waltz, Op. 64, No. 1 (Chopin). **5.40,** Concert by the K.R.O. Boys, conducted by P. Lustenhouwer, Soloist: J. Mossel (Songs). **6.20,** Esperanto Lesson. **6.40,** Concert by the K.R.O. Boys (contd.). **7.0,** Talk. **7.20,** Concert by the K.R.O. Boys (contd.). **7.50,** Talk. **8.10,** Police Notes. **8.25,** Electoral Address. **9.55,** News. **10.0,** Concert by the K.R.O. Orchestra, conducted by J. Gerritsen. Soloist: J. Bresser (Violin). Overture, Im Frühling (Goldmark); Violin Concerto in D Minor, Op. 22 (Wieniavsky); Two Slav Dances (Dvorák); Popular Music on Gramophone Records; Arab Melody (Glazunov); Selection from Manon Lescaut (Puccini); Concert Waltz, Op. 47 (Glazunov). **11.20,** News. **11.25,** Concert (contd.). Overture, Zampa (Hérold); Waltz from Countess Maritza (Kálmán); Hornstein-Marsch (Fucik). **11.55,** Popular Music on Gramophone Records. **12.40 a.m. (Wednesday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News and Financial Report. **8.10,** Agricultural Talk. **8.20,** Wireless Announcements. **8.35,** Radio Concert. **9.0,** Weather and News. **9.15,** Radio Concert. **9.45,** Dance Music from the Palais de la Mediterranée. **12 Midnight to 1.0 a.m. (Wednesday),** Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight,** Light Music: Song: The Yeomen of England (German); El Estandarte (Pizzard); Song of the Volga Boatmen; The Blue Danube (Strauss); Song: Mexican Serenade (Teresc); Russian Song, Shining Moon; Rakoczy March (Berlioz). **12.30 a.m.,** Dance Music: Mad about you; Moonlight Saving Time; Two little, blue little eyes; Poor Kid; Laughing at the Rain; I'm happy when I'm hiking; Mood Indigo; Farewell Blues. **12.57,** I.B.C. Goodnight Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0 to 2.30 p.m.,** Concert, conducted by Wolf. Overture, Banditenstreiche (Suppé); Peasant Suite (Ailbout); Selection from Martha (Flotow); The Butterfly Chase (Kéler-Béla); Waltz, Traumideale (Fucik); Potpourri, Musikalische Seifenblasen (Urbach); Spring Serenade (Lacombe); Gallop, Durchs Ziel (Translateur). In an interval at **2.0,** Announcements. **3.0,** Programme for Children. **3.30,** Economic Notes and Time Signal. **3.50,** Talk: The Theatre as a Social Necessity. **4.20,** Notes on the Broadcasts for Schools. **4.30,** See **Frankfurt. 5.50,** Talk: Instinct and Intellect in Popular Legends. **6.16,** Agricultural Notes. **6.30,** Italian Lesson. **6.50,** Weather and News. **7.0,** Transmission for all German Stations, relayed from **Heilsberg. 8.0,** Announcements. **8.5,** Concert by the Station Orchestra and the Concert Choir. Soloist: Ilse Gohr (Pianoforte). Pianoforte Concerto in C (Beethoven); Mixed Choir and Orchestra: (a) Um Mitternacht, (b) Wolken am Meere (Heuser). **10.5,** Announcements, Educational Notes and Sports Results. **10.15** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—12 Noon,** Weather and Time Signal. **12.5 p.m.,** Gramophone Concert—Famous Soloists. **1.0,** News, Weather, and Time. **1.15,** Gramophone Concert of Light Music. **Exchange** Quotations after the Concert. **2.0 to 2.15,** Talk for the Unemployed. **3.35,** Market Prices. **4.0,** Talk: Excursions in the Gottschee, Yugoslavia. **4.30,** Concert by the Dessau Friedrichstheater Orchestra, Dessau; Conductor, Gustav Mannebeck: Overture, Christelklein (Plitzner); Andante from the Symphony, Op. 44 (Robert Volkmann); Serenade, Op. 1 (Othmar Schoeck); Selection from Ritter Pasman (Joh. Strauss); Oriental Sketches (J. G. Mraczek). **5.30 to 5.35,** Weather and Time. **5.50,** Economic Notes. **6.5,** Talk: German Youth Hostels. **6.45,** Programme to be announced. **7.0,** Transmission for all German Stations, relayed from **Heilsberg. 8.0,** Topical Talk. **8.15,** Song Competition in connection with Travel Week, relayed from the Alberthalle; The Leipzig Symphony Orchestra, conducted by Werner Ladwig; Soloists, Marcel Wittrisch (Tenor), Käte Heidersbach (Soprano). **10.15,** News. **10.30** (approx.), Teachers and Scholars of Great Composers: II, Mozart; Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer; Soloist, Hans Grisch (Pianoforte).

LINZ.—See **Vienna.**

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** Popular Music. **11.45,** Radio Chronicle. **12 Midnight,** A Musical Comedy. **12.35 a.m. (Wednesday),** Talk. **12.40,** Light Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Topical Review, and Request Gramophone Records. In the interval at **8.30,** Talk. **9.15,** News and Political Review. **9.30 to 10.0,** Interval. **10.0,** English Lesson by the Linguaphone Method. **10.30,** Chimes, Time, and Political Review. **10.45** (approx.), Saetas—Musical Comedy (Modesto Rebollo-Gaspar de Aquino). **12.45 a.m. (Wednesday),** News Bulletin. **1.0 a.m.,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,367 kc/s, 263.8 metres; 11 kW.—**4.10 p.m.,** Concert of Variety Music by the Station Orchestra, conducted by J. Plichta. **5.10,** See **Prague. 5.50,** Programme from **Brno. 6.0,** Talk. **6.25,** See **Brno. 7.0,** See **Prague. 10.15,** See **Bratislava. 11.0** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—8.0 p.m., Talk in Dutch: Soviet Legislation about Religion. **9.0,** Talk in **French. 9.55,** Time Signal. **10.5,** Talk in **Hungarian.**

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres,** and **Nürnberg, 1,256 kc/s, 239 metres.—4.30 p.m.,** Concert, conducted by Erich Klosz. Overture, Rosamund (Schubert); Der Vogel als Prophet (Schumann); Winterszeit (Schumann); Selection from The Taming of the Shrew (Goetz); Suite, In a Fairy Realm (Ketelbey); Potpourri, Eishlumen (Leuschner); Scandinavian Tone Picture (Juel-Frederiksen); Rigaudon (Rameau); March, Heil Potsdam (Teike). **5.45,** Talk: Intellectual and Artistic Life after the Napoleonic Wars. **6.5,** Talk on William of Orange. **6.25,** April Showers—a Gramophone Medley. **6.45,** Time, Weather and Agricultural Report. **7.0,** Transmission for all German Stations, relayed from **Heilsberg. 8.0,** Der Zerrissene—Comedy (Nestroy), with Music by Adolf Müller). **9.30,** Brahms Chamber Music. Sonata in E Flat, Op. 120, No. 2, for Clarinet and Pianoforte; Quintet in B Minor, Op. 115, for Clarinet, Two Violins, Viola and 'Cello. **10.20,** Time, Weather, News and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredrikstad, 816 kc/s, 365.8 metres; Hamar, 536 kc/s, 522 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.—5.0 p.m.,** Variety Concert, relayed from **Trondheim, 605 kc/s, 495.8 metres. 6.0,** Two Talks for Housewives. **6.45,** Banjo Recital of Dance Music by Norman Olsen. **7.0,** Announcements, Weather, and News. **7.30,** English Lesson. **8.0,** Time Signal. **8.1,** Talk. **8.30,** Concert of Scandinavian Music by the Station Orchestra conducted by Hugo Kramm. **9.40,** Weather and News. **10.0,** Topical Talk. **10.15,** Song, Violin, and 'Cello Recital, relayed from **Trondheim. 11.15** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

APRIL 25th TUESDAY continued

PALERMO

558 kc/s, 542 metres; 3 kW.—8.0 p.m., Dopolavoro Notes. Tourist Talk, Agricultural Notes, and Giornale Radio. **8.20,** Gramophone Records. In an interval at **8.35,** Time Signal and Announcements. **8.45,** Concert of Music by Mulè. In the intervals, Book Talk and Announcements. **10.55,** News.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and Edoi Signals).—**5.45 p.m.,** Theatre Review. **7.0,** Le Journal Parlé. **8.20,** Weather Report. **8.30,** Concert (Details to be announced).

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Sponsored Concert with Gramophone Records. **8.0,** Film Review. **8.5,** Talk on the Circus. **8.15,** Interval. **8.30,** Concert for Danish Listeners; Conductor: Théodore Mathieu; Soloist: Marie Tissier (Songs): Overture, Phèdre (Massenet); Margaret's Air, from Le roi d'Ys (Lalo); Cortège de Bacchus, from Sylvia (Delibes); Entr'acte from La galante Aventure (Gnirand); Arias from Faust (Gounod): (a) The King of Thule, (b) The Jewel Song: Prelude à l'après-midi d'un faune (Debussy); Danse bracabre (Saint-Saëns); Song: Nicolette (Ravel); Rhapsody, España (Chabrier). In the intervals, Address by M. Oldenburg, the Danish Minister in Paris, Talk and Readings in Danish. **10.30,** News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Concert by the Krettly Orchestra: Overture, The Italian Girl in Algiers (Rossini); Selection from The Daughter of the Regiment (Donizetti); Overture, Marco Spada (Auber); Selection from Philemon et Baucis (Gounod); Selection from Le bon Roi Dagobert (Samuel Rousseau); Gramophone Interlude; Selection from Pelléas et Mélisande (Debussy); Quartet in D with Flute (Mozart); Overture, Fingal's Cave (Mendelssohn); Finale from the Quartet in G Minor (Brahms); Prière (Boellmann); Marche héroïque (Saint-Saëns). In the interval at **1.0 p.m.,** Exchange, News, and Weather, and at **1.30,** Exchange. **2.0,** Exchange and Announcements. **3.45,** Exchange and Market Prices. **4.30,** Elementary English Lesson. **6.10,** Agricultural Talk. **6.30,** Advanced English Lesson. **6.50,** Theatre Review. **7.5,** Talk on Art: The Advent of the Machine. **7.20,** Concert by the Krettly Orchestra: Trees (Rasbach); Bird Songs at Eventide (Coates); Marche des petits Soldats de plomb (Pierné); Petite Suite (Busser). **7.45,** Commercial Prices, News, and Review of the Anglo-Saxon Press. **8.0,** Variety Programme arranged by Paul Weill. **8.30,** News and Weather. **8.40,** Review by Paul Seize. **8.45,** Hamlet Drama (Shakespeare), with Incidental Music by Eugène Bigot. **9.15** (in an interval), Press Review and News. **10.0,** Gramophone Concert: Selection from Rip van Winkle (Planquette); Selection from Fortunio (Messager); Melody from Le bon Roi Dagobert (S. Rousseau); Two Songs from Marouf (Rabaud); Two Melodies from The Czarevitch (Lehár).

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**10.0 p.m.,** Work-a-Day Thoughts. **10.5,** Business News. **10.15,** Selma Braudt (Pianist). **10.30,** Weather Report. **10.31,** Market Reports. **10.45,** Programme to be announced. **10.57,** David Lawrence Dispatch. **11.0,** Programme to be announced. **11.15,** Dick Daring, from **New York.** **11.30,** The Singing Lady, from **New York.** **11.45,** Little Orphan Annie. **12 Midnight,** Booth Tarkington's Maude and Cousin Bill, from **New York.** **12.15 a.m. (Wednesday),** Time Signal. **12.16,** Weather Report. **12.17,** Teaberry Sport Review. **12.22,** Press News Reder. **12.29,** Temperature Report. **12.30,** Programme to be announced. **12.45 to 5.0, New York** Relay. **12.45,** Today's News by Lowell Thomas. **1.0,** Pepsodent Amos 'n' Andy. **1.15,** National Advisory Council on Radio in Education—Unemployment Insurance. **1.45,** The Townsend Murder Mystery. **2.0,** Eno Crime Clues. **2.30,** Time Signal and Adventures in Health. **2.45,** Southern Singers. **3.0,** Household Musical Memories. **3.30,** Willard Robison's Deep River Orchestra. **4.0,** The Time Detective. **4.15,** Vic and Sade. **4.30,** Homay Bailey and Orchestra. **4.45,** Prof. Jack Meredith, Sara and Sassafras. **5.0,** Time Signal. **5.1,** Teaberry Sport Review. **5.11,** Temperature Report. **5.12,** Weather Report. **5.15,** Press Last Minute News Flashes. **5.20,** Jack Pettis and his Orchestra. **5.45,** Phantom Gipsy, from **New York.** **5.58,** KDKA Artist Bulletin. **6.0,** Cotton Club Orchestra, from **New York.** **6.30,** Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—4.10 p.m., See **Moravská-Ostrava.** **5.10,** Talk on Economies. **5.20,** Czech Lesson for Germans and German Lesson for Czechs. **5.50,** Variety Music on Gramophone Records. **6.5,** Agricultural Market Prices. **6.15,** Talk for Workers. **6.25,** News in German. **6.30,** German Transmission: Talk on Czechoslovak Spas. **7.0,** Chimes. **7.1,** News Bulletin. **7.10,** Talk on Hygiene. **7.25,** Hermelin's Circus—Radio Play in Three Acts (Werner). In the interval at **9.0,** Time Signal. **9.25,** The Kreutzer Sonata in A, Op. 47 (Beethoven), by S. Novák (Violin). **10.0,** Time Signal. **10.1,** News Bulletin. **10.15,** See **Bratislava.** **11.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.: **LAUSANNE, 442 kc/s, 680 metres,** and **GENEVA, 395 kc/s, 760 metres. 6.0 p.m.** (from **Lausanne**). Talk. **6.30** (from **Geneva**), English Lesson. **7.0 to 10.0,** Programme from **Geneva.** **7.0,** Weather and News. **7.20,** Answers to Correspondents. **7.30,** New Gramophone Records. **8.0,** Concert by the Broadcasting Serenaders. **9.5,** Mass for Four Voices and Organ (Montfilet), relayed from St. Joseph's Church. **10.0,** News and Weather. **10.10,** Talk: The Work of the League of Nations. **10.30** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 30 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.—1.0 to 2.15 p.m.,** Orchestral Concert. In the interval at **1.30 to 1.45,** Giornale Radio and Exchange. **3.45,** Children's Radio Review. **5.10,** Announcements. **5.15,** Exchange and Giornale Radio. **5.30 to 6.15,** Orchestral Concert. Lolita (Tartara); Janet (Mancori); Le canzoni d'Italia (de Micheli); Ein bisschen Liebe für dich (Stoiz); Selection from Falstaff (Verdi); Portuguese Serenade (Ricciardi); Without Love (Kaper); Romance (Napoli); Granada (Feydet); Madrileña (Fagiolari). **7.0 (Naples),** Shipping and Sports Notes. **7.10,** Atmospheric Signals. **7.20,** Giornale Radio, Agricultural Report and Dopolavoro Notes. **8.0,** Time and Announcements. **8.2,** Talk. **8.15,** Gramophone Records of Light Music. **8.35,** Sports Notes and Tourist Report. **8.45,** Variety Concert, Margherita Roesgen-Champion (Harpsichord) and Maria Senes and Anita Ribecova (Soprano). Concerto in F for Harpsichord and Orchestra (Haydn); Four Duets: (a) Song (Mendelssohn), (b) Aria from Figaro (Mozart), (c) Per valli, per boschi (Blangini), (d) Aria from Lakmé (Delibes); Harpsichord Solos: (a) Le Carillon de Cythère (Couperin) (b) Le coucou (Daquin), (c) Allegro (Galuppi), (d) Gigue (Scarlatti); Reading; Aquarelles for Harpsichord and Orchestra (Roesgen-Champion); Fourth Act of La Favorita—Opera (Donizetti). News after the Operetta.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** and by **W2XAD** (see Short-Wave List). **1.0 a.m. (Wednesday),** General Electric Programme. **1.15,** Stock Reports. **1.30,** Johnny Albright (Crooner). **1.45 to 4.0, New York** Relay. **1.45,** The Goldbergs, Comedy Sketch. **2.0,** Blackstone Plantation. **2.30,** Wayne King's Orchestra. **3.0,** Ben Bernie's Blue Ribbon Orchestra. **3.30,** Ed Wynn and the Fire Chief Orchestra. **4.0,** Musical Programme, from **New York,** followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.—12.28 p.m.,** Time Signal from Neuchâtel Observatory. **12.30,** Weather and News. **12.40,** Concert of Light Music by the Radio Orchestra. **1.35,** Weather and Exchange. **1.40 to 3.30,** Interval. **3.30,** Concert by the Little Radio Orchestra. **4.0 to 5.30,** Programme from **Basle.** **4.0,** Extracts from Ball im Savoy—Operetta (Abraham) on Gramophone Records. **4.30,** Cigány Music on Gramophone Records. **5.0,** Dance Music on Gramophone Records. **5.30,** Weather Report. **5.35 to 6.30,** Interval. **6.30** (from **Basle**), Talk: Swiss Foreign Trade during the First Quarter of 1933. **7.0,** Time and Weather. **7.2 to 9.30,** Programme from **Berne.** **7.2,** Notes on the Broadcasts for Schools. **7.15,** Talk: Research into the Psychology of the Criminal. **7.45,** Talk on the following Transmission. **7.55,** Le Chalet—Opéra-Comique in One Act (Adam). **9.30** (approx.), Weather and News. **9.40** (from **Berne**), An Excursion with the Microphone. **9.50,** Late Concert by the Station Orchestra. **10.15** (from **Berne**), Talk in English: Berne Customs and Traditions. **10.35** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Goteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres,** and **Sundsvall, 554 kc/s, 542 metres.—5.5 p.m.** (from **Ostersund**). Programme for Children. **5.30,** The Practical Corner. **5.45,** Popular Music on Gramophone Records. **6.45,** Elementary French Lesson, relayed from **Malmö, 1,301 kc/s (231 metres). 7.15,** Weather and News. **7.30,** Talk on Social Problems. **8.0,** Concert, relayed from St. Peter's Church, Malmo. Mea Akerman (Songs), Gösta Lundqvist ('Cello) and Axel Beberg (Organ). Organ Solo: Prelude in C (Bach); Songs: (a) In oliesta tomba (Beethoven), (b) Die junge Nonne (Schubert); 'Cello Solos: (a) Andante cantabile (Tartini), (b) Adagio non troppo (Boccherini); Organ Solos: Three Short Pieces (Franck); Songs (Brahms): (a) Ich wandte mich und sahe an alle, (b) Wenn ich mit Menschen—und mit Engelszungen redete; 'Cello Solos: Sarabande and Allemande, from the Suite in C (Bach); Organ Solo: Fantasia in F Minor (Mozart). **9.0,** April—Radio Play (Hertha Odeman). **9.45,** Weather and News. **10.0,** Military Band Concert: Overture, Tannhäuser (Wagner); Selection from Siegfried (Wagner); Norwegian Artists' Carnival (Svendsen); Waltz from The Gipsy Princess (Kalman); Selection from Viktoria and her Hussar (Abraham); March (Teike). **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Light Music on Gramophone Records. **12 Noon,** Orchestral Concert, conducted by Maurice de Villers; Part I, Delibes Music: Overture, Le roi l'a dit; Ballet Suite, La Source; Ballet Music from Lakmé; Orchestral Suite from Le roi s'amuse. **12.45,** News. **1.0,** Time and Exchange. **1.5,** Orchestral Concert (contd.); Part II: Overture, A Life for the Czar (Glinka); Selection from A Masked Ball (Verdi); Ballet Airs, La Peria (Lacome); Hymn to the Sun from The Golden Cockerel (Rimsky-Korsakov); Two Slav Dances (Dvorák); Polovtsian March (Borodin). **2.0** to **4.45,** Interval. **4.45,** Talk in French on the French Colonies, St. Pierre and Miquelon. **5.0,** Concert of Jazz Music, conducted by Ruskam. **6.0,** History Talk. **6.15,** Topical Talk in French. **6.30,** Songs and Recital on Two Pianofortes: Sonata for Two Pianofortes (Bach): Theme and Variations for Two Pianofortes (Schumann); Songs (Casadesus); (a) Rêverie, (b) Promenade, (c) Soleil de France; Piece in B Minor for Two Pianofortes (Repatz); Valses romantiques, for Two Pianofortes (Chabrier). **7.20,** Time and News. **7.45,** Light Music on Gramophone Records. **8.15,** Press Review in German, and Lottery Results. **8.30,** Relay of an Opera from **Paris.** After the Opera, Press Review in French. **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.: and **Freiburg, 527 kc/s, 570 metres. — 12 Noon,** Open Air Concert of Light Music. **1.0 p.m.,** Popular Music on Gramophone Records. **1.15,** Time, News, Weather, and Programme Announcements. **1.30,** See **Langenberg. 2.0,** Concert arranged by the Post Office. **2.30,** Advanced English Lesson. **3.30,** Talk on Flowers. **4.0,** Talk: Women as Professional Photographers. **4.30,** See **Frankfurt. 5.45,** Time, Weather, and Agricultural Notes. **6.0,** Talk: German Characters and the Re-organisation of the Primer. **6.25,** Arno Holz Programme, for his Seventieth Birthday. Talk and Readings. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Heilsberg. 8.0** (from **Karlsruhe**), Concert of Folk Music by the Karlsruhe Accordion Club. **8.30,** Recital of Seventeenth and Eighteenth Century German Songs by Richard Bitterauf: Songs (Voigtlaender): (a) Zum Lobe der Musik, (b) Ach, böses Herz; Herbstlied (H. Albert); Vom dreissigjährigen Krieg (Scht); Ode (J. P. Sach); Dich Amor (K. F. Hurlebusch); Kunst des Küssens (Hammerschmidt); Rhapsody (Reichardt); Serenade (Neesfe); Die Wassernymphe (Neesfe); Rastlose Liebe (Zelter); Von der edlen Musik (Rathgeber). **9.20,** Reading of Ballads by Börries von Münchhausen. **9.45,** Clarinet Quintet in B Minor (Brahms). **10.15,** Time, News, Weather, and Programme Announcements. **10.45,** Serenade by the Stuttgart Philharmonic Dance Band, Conductor, Harry Risch. In the interval, Recital of Operetta Songs by Hermann Lugor. **12 Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**6.15 p.m.,** Accordion Music. **6.30,** Till Eulenspiegel—Symphonic Poem (R. Strauss). **6.45,** Songs from Sound Films. **7.0,** Opera Music. Prelude to Act III of Parsifal (Wagner); Selection from The Huguenots (Meyerbeer). **7.15,** News, Racing Results and Market Prices. **7.25,** Local News. **7.30,** Opéra-Comique Songs; Songs from Cavalleria rusticana (Mascagni), La Traviata (Verdi) and Marouf (Rabaud). **7.45,** Viennese Music. **8.15,** Songs. **8.30,** Argentine Music. **8.45,** Opera Music: Aria from The Bartered Bride (Smetana); Aria from The Magic Flute (Mozart); Song of the Forge from Siegfried (Wagner). **9.0,** Concert by the Toulouse Symphony Orchestra conducted by M. Tartanac: Overture, Il Seraglio (Mozart); Reverie, Au bord de la mer (Dunkler); Song, Le Mariage des Roses (Franck); Erlkönig (Schubert); Le Moulin de Jeannette (Tartanac); Aphrodite (Pellipucci); Selection from No, No, Nanette (Youmans); March from The Merry Widow (Lehár); Light Music in the interval. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Opéra-Comique Songs. **11.15,** Popular Songs. **11.30 to 12 Midnight.** Programme in English by the I.B.C., W. Brown-Constable announcing. **11.30,** Light Music. Selection, Other Days (arr. Parkington); Where my Caravan has rested (Lohr); I know of two Bright Eyes (Clutsam); Selection from H.M.S. Pinafore (Sullivan); Song of Songs (Moya); I want your Heart (Woods); Other Days' Medley (arr. Parkington); **11.57,** I.B.C. Goodnight Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Wednesday),** Military Music. **12.15,** Orchestral Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.15 p.m.** till Close Down. See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.—5.15 to 6 p.m.,** Dance Music from the Savoia, Milan. **6.35,** Giornale Radio and Agricultural and Dopolavoro Notes. **7.0,** Time, Report of the Royal Geographical Society and Popular Music on Gramophone Records. In the interval from **7.20 to 7.45,** Giornale Radio. **8.0,** Announcements, Giornale Radio, Weather, and Gramophone Records (contd.). **8.30,** Talk. **8.45,** Variety Programme. **9.45,** Talk. **10.0,** Orchestral Concert. **11.0,** Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and **5,969 kc/s, 50.26 metres (Evening);** 10 kW. **—11.10 to 11.15 a.m.,** Religious Information in English. **8.0 to 8.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,293 kc/s, 218.5 metres.— 4.45 p.m.,** Concert by the Mayer-Aichhorn Orchestra: Overture, Pique Dame (Suppé); Waltz, Perlen der Liebe (Jos. Strauss); Selection from Der Kuhreigen (Kienzl); Songs and Dances (Ziehrer); Pas de deux (Mayer-Aichhorn); Gavotte (Hellmesberger); Waltz, Die letzten Tropfen (Kratzl); I hab' dir in d'Aeuglein g'schaut (Koschat); Potpourri, Für lustige Leut (Komzak). **6.0,** Agricultural Talk. **6.25,** Talk: Humanity's Dreams. **6.40,** Italian Conversation Lesson. **7.15,** Time, Weather, and Programme Announcements. **7.25,** A Masked Ball (Verdi), relayed from the State Opera House. In an interval at **9.30** (approx.), Weather Forecast. **10.5,** Announcements. **10.10,** Dance Music by the Astoria Band, relayed from the Café Westminster.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Light Music on Gramophone Records. **1.20,** Weather Forecast. **1.25 to 3.10,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Aviation Report and Anti-Gas Drill. **3.30,** Announcements. **3.35,** Book Review. **3.50,** Popular Music on Gramophone Records. **4.20,** Talk: The Birth of the Polish State. **4.40,** Talk on Casimir the Great, relayed from **Cracow, 959 kc/s, 312.8 metres. 5.0,** Symphony Concert by the Warsaw Philharmonic Orchestra, conducted by G. Fitelberg: Symphony (Borowsky); Mona Lisa (Rozycky); Descriptive Piece (Wieniavsky); Village Scene (Maszynsky). **5.55,** Programme Announcements. **6.0,** Biological Talk. **6.20,** News. **6.25,** Dance Music relayed from the Café Italia. **7.0,** Miscellaneous Items. **7.20,** Agricultural Report. **7.30,** Talk on Music. **7.45,** Radio Journal. **8.0,** Concert by the Station Orchestra, conducted by Oziminsky. Soloist: J. Debicka Sternitch (Soprano). Overture, Marie (Statkowsky); Ballet Suite from Bacchus (Masseuet); Soprano Solos; Scherzo from Roma (Bizet); Selection from The Valkyries (Wagner); Soprano Solos; Torch Dance (Meyerbeer). **9.20,** Sports Notes. **9.35,** Radio Journal. **9.40,** Pianoforte Recital by Mme. Jaroszewicz. **10.25,** Reading. **10.35,** Dance Music relayed from the Café Adria. **10.55,** Aviation Weather Report and Police Notes. **11.0** Dance Music (contd.).

ZURICH.—See **Schweizerischer Landessender.**

Foreign Programmes continued on page XIII.

PROGRAMMES CONTINUED

Dependability Demands DUBILIER

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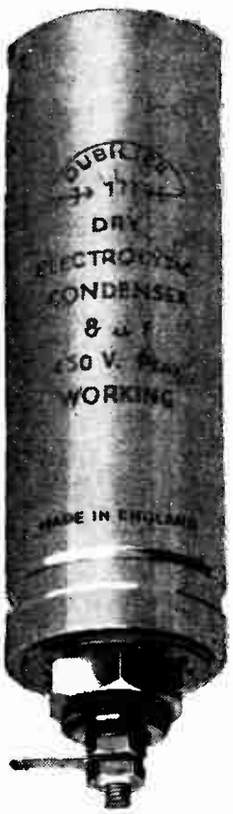

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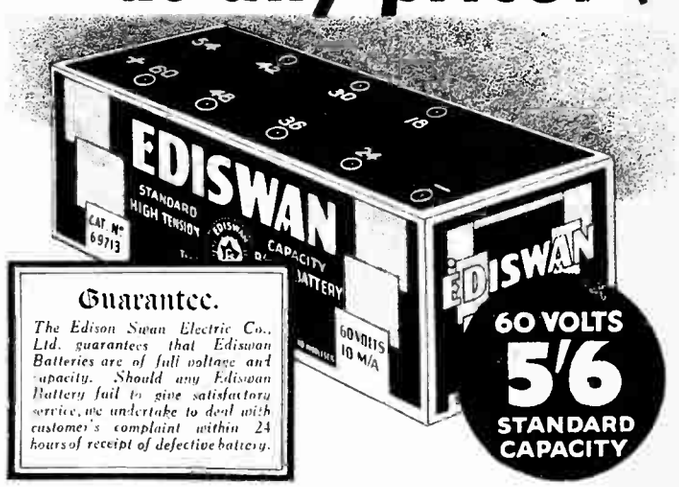

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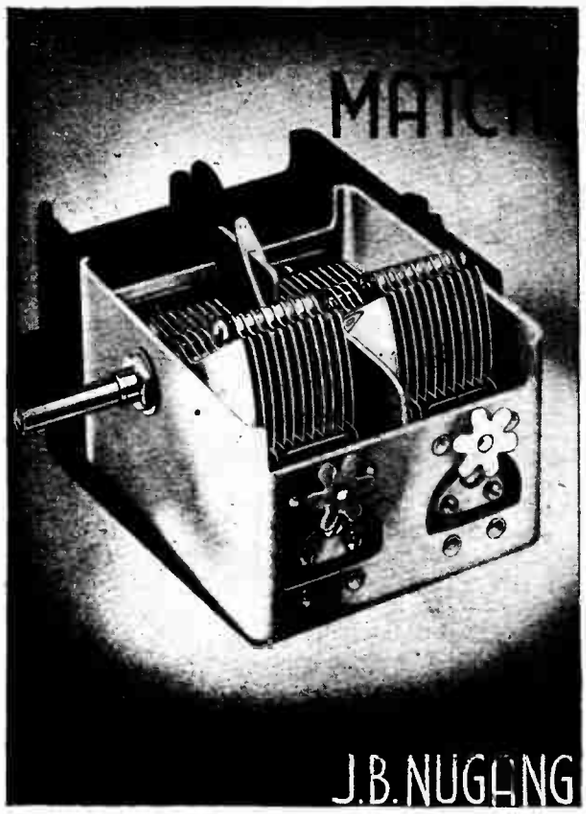

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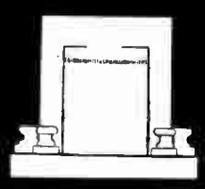

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The Wireless World

THE PRACTICAL RADIO JOURNAL

23rd Year of Publication

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As many of the circuits and apparatus described in these pages are covered by patents, readers are advised, before making use of them, to satisfy themselves that they would not be infringing patents.

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EDITORIAL COMMENT

Prices

A Word of Warning

ONE or two comments which have reached us since the appearance of our Leader of the issue of April 7th discussing the price of components, suggest that our views have not been correctly interpreted, for it has been suggested that our urge for the reduction in the price of components would lead to the production of shoddy and inefficient apparatus.

Let us make our views quite clear on this subject. We believe that there is room for a reduction in the cost of components and that such a reduction is necessary if the public is to be given satisfaction in the future, but (to quote from our Leader in question), "We do not want to see the electrical efficiency of components suffer in an attempt to bring down the retail price, but we believe that prices can be brought down by attention to economies other than the reduction of the electrical efficiency." As further confirmation of our views that prices ought not to come down at the expense of efficiency, we have only to refer to a Leader in the issue of March 10th, in which, commenting on the future development of the complete receiver, we stated: "Only one aspect of progress need cause us anxiety for the future. There has been a recent tendency to cheapen the product to a point where performance begins to show signs of suffering." And again, "We recognise that price must always remain a very important factor, but we sincerely trust that progress will not be stayed as a result of over-emphasis of the significance of price reduction."

Somewhere it should be possible to arrive at the happy medium between low prices and unnecessarily extravagant production and retail marketing without any loss in performance.

An investigation of the cause of high prices of components would probably reveal that this was largely accounted for because of the somewhat elaborate cartoning as well as the attempts made to enhance the external appearance of components for the retail market. The arguments for attractive appearance of components are not so strong to-day as they were some years back when the constructor usually built up a receiver on a baseboard and seldom considered using the set in a cabinet, but to-day few constructors would prefer to leave an assembled set exposed to dust and the risk of accidental damage when cabinets are so readily obtainable.

Wireless in Public

A Fair Policy

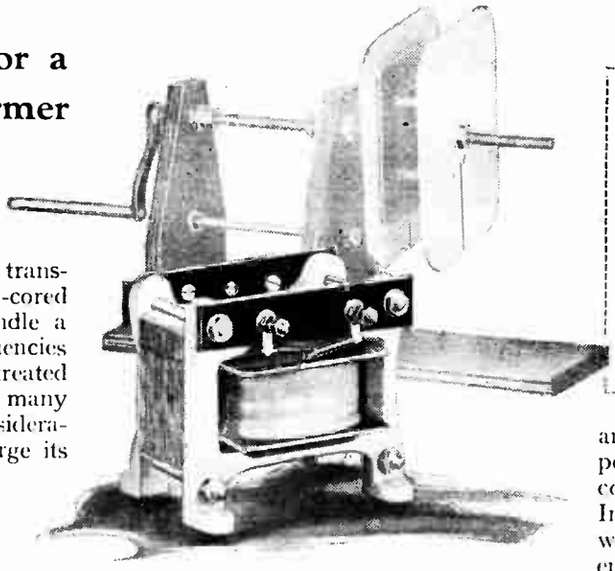
THE recent test action brought by the Performing Right Society appears to have established that owners are entitled to royalties on performances of copyright works given in public through the medium of a broadcast receiver. It is always unsatisfactory in a matter of this kind when the legal position is uncertain because no test case has been conducted, but now, fortunately, all parties have the satisfaction of knowing where they stand.

We welcome the attitude adopted by the Performing Right Society in stating, since the result of the action was known, that it is not proposed to depart from its former policy of making no claim in respect of performance of music by wireless or music dealers in the course of their business on their premises. The action was brought to protect rights which the Society has acquired.

Output Transformer Design

Constructional Data for a 3-watt Output Transformer to Carry 60mA.

By H. B. DENT



WITH the help of an improvised winding machine the construction of an efficient output transformer is well within the scope of the average set builder. Details are here given for a number of models to meet special requirements so that the matching of almost any valve to any loud speaker becomes possible. Particular attention is paid to leakage inductance.

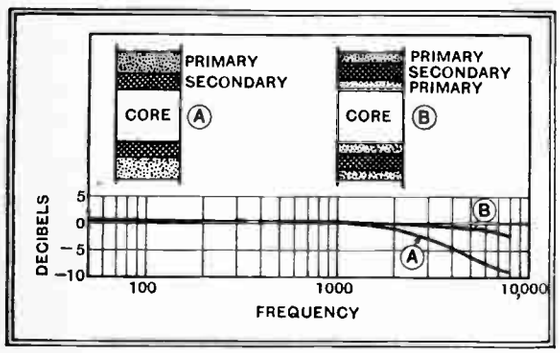
THE design of output transformers and other iron-cored structures required to handle a wide range of audible frequencies becomes somewhat involved when treated mathematically, for there are so many factors that must be taken into consideration if the component is to discharge its functions satisfactorily. Whilst it is not proposed to burden the reader with a host of formulæ, since this article is essentially practical and is concerned with the constructional side, we might profitably devote a little space to a brief review of a few fundamental facts, for, knowing what to avoid and where liberties can be taken without marring its performance, it is possible to steer clear of the main pitfalls.

Correct Matching

An output transformer is essentially a power device, for its principal function is to transfer energy from the anode circuit of the output valve to the loud speaker without undue loss and with the minimum distortion. The last-mentioned condition can be met by maintaining the flux in the core at a reasonably low level, whereas, in a mains transformer, for example, it is customary to work the iron at a very much greater flux density, since distortion within reasonable limits is of little consequence.

To comply with the conditions of maximum undistorted power output the impedance of the loud speaker should be equal to the optimum load resistance of the valve; but as modern loud speakers have but a few turns only on the speech coil and, consequently, a very low impedance, a transformer is employed having a ratio adjusted to throw back into its primary circuit an impedance of the correct order required. If the reactance of the primary winding on the transformer is high compared with that of the valve's optimum load we can ignore it and adjust the ratio by taking the valve's load resistance and the loud speaker impedance and calculate the ratio required for any particular case.

A very simple formula suffices for this, and the transformer ratio for any combination of valve and loud speaker can be found by dividing the optimum load resistance for the valve by the impedance of the loud speaker and taking the square root of this. The load resistance for all power valves in general use to-day are given in *The Wireless World* Valve Data Supplement, whilst if the impedance of the loud speaker is not known it can be found approximately by measuring the D.C. resistance of the speech coil and multiplying by two.

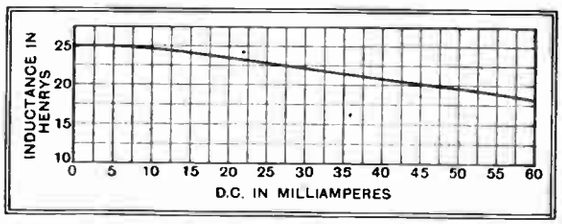


With sectionalised winding the leakage inductance is reduced and the upper register improved.

In an output transformer the self-capacity of the windings can be ignored, for with the usual types this never attains a value sufficient to affect its performance. The only serious losses we are likely to encounter are those introduced by the leakage inductance. This results in a progressive attenuation of the frequencies from about 1,000 cycles upwards and may, unless taken in hand, lead to a very serious loss in the upper register, with the result that the reproduction lacks brilliance and becomes a very poor replica of the original broadcast or the gramophone recording.

The leakage inductance is brought into being when all the magnetic lines of force generated by the primary do not link with the secondary winding. It would not appear if the secondary occupied the same space as the primary, as, for instance, in an output choke, which for practical purpose is a one-to-one transformer with a common primary and secondary winding. In any other case, especially where two windings of dissimilar number of turns are employed, a certain leakage is inevitable, but by careful design we can so arrange matters that the leakage inductance is brought down to a sufficiently low level that over the frequency range covered its effect is of small account.

That this is quite possible of attainment in practice and without unduly complicating the construction can best be shown by some curves taken with a few experimental models, of which one and that of the design adopted finally are reproduced here. The size of the core, also the primary and the secondary windings, are identical in both examples; in the one, however, the secondary was wound on first and the primary followed. The assembly is shown in the sketch A and its curve is similarly marked. Above 1,500 cycles the attenuation is quite appreciable and the output is 9 decibels down at 8,000 cycles.



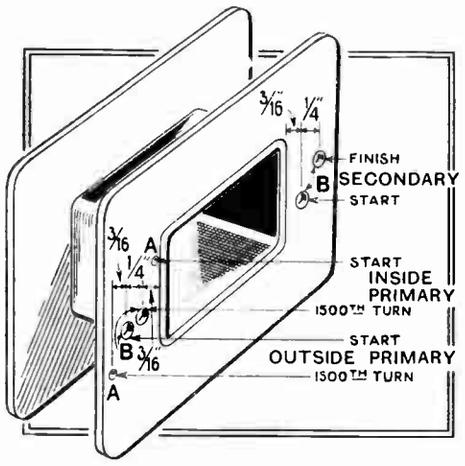
The primary inductance is well maintained even with quite large D.C. currents.

Leakage Inductance

By rearranging the windings as shown in the sketch B, the core and the number of turns being otherwise the same, a marked improvement was obtained, as can be seen from the curve B, the higher frequencies are maintained at a much better level throughout and the output at 8,000 cycles is now only 2.5 decibels lower than that at 1,000 cycles. An improvement might be possible by further sectionalising the windings, but the curve is sufficiently good as it stands to satisfy most requirements.

Output Transformer Design—

These results are obtained with a component having a primary inductance of the order of 20 henrys under working conditions, and although it will carry a D.C. current of 60 mA. and still maintain an adequate primary inductance, it is not likely to be called upon to deal with anode currents much in excess of 50 mA. Yet it is reasonably compact, measuring but $3\frac{5}{8}$in. × $3\frac{1}{2}$in. × $3\frac{1}{4}$in. and is intended to handle an A.C. output of 3 watts.



Drilling details of the bobbin, giving the positions of the various holes.

The model illustrated here is designed to give a step-down of 1 to 39, but any ratio can be adopted to suit individual requirements. Various ratios, such as 1 to 27.4 and 1 to 13.7, have been used with the same method of winding, and in every case the curve was in very close agreement with that shown.

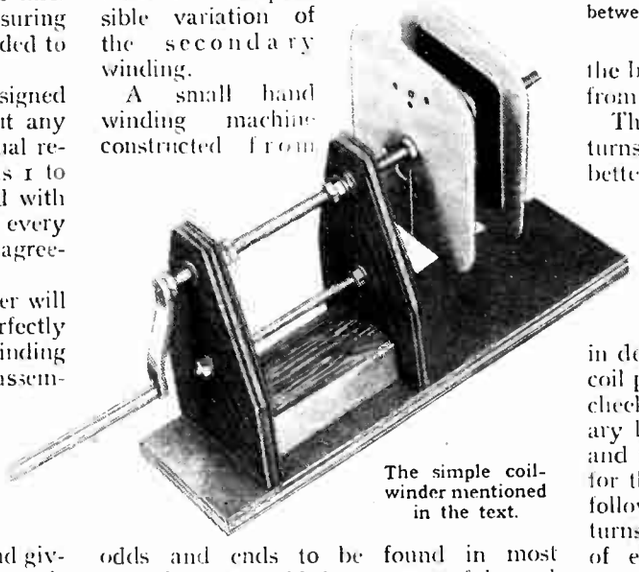
The construction of the transformer will present no difficulty, as it is perfectly straightforward and consists of winding three separate coils on a bobbin, assembling the core, and fitting terminal strips.

The material required consists of 100 pairs of Stalloy No. 30 stampings, obtainable from Joseph Sankey and Sons, Ltd., one bobbin to accommodate them and giving a core section of 1.5 sq. in., one pair of aluminium end-clamps, and ½lb. of No. 34 S.W.G. enamel wire for the primary. The bobbin and end-clamps can be obtained from Sound Sales, Ltd., Tremlett Grove Works, Junction Road, Highgate, London, N.19, who also supply stampings. The wire for the secondary depends on the current flowing in the loud speaker circuit, and this is governed by its impedance and the power output. A few typical examples have been prepared and are given in the table; in every case the maximum output of 3 watts is assumed. For a 2-ohm impedance loud speaker No. 20 S.W.G. enamel wire is required, for a 7.5-ohm model we find that No. 22 S.W.G. enamel serves, and for one of 15 ohms No. 24 S.W.G. enamel may be used. The quantity varies throughout, but 6oz. will suffice in most cases.

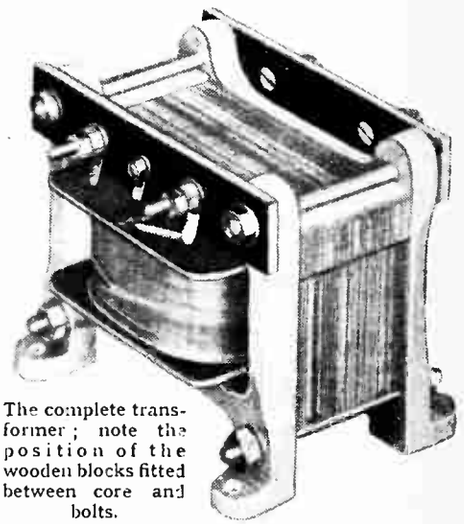
The Winding Machine

Before commencing to wind the bobbin six holes should be drilled in the positions shown on the sketch to bring out the start and finishing ends of each coil. They are drilled in opposite end-cheeks along the shorter of the two sides, and those marked A can be $\frac{1}{16}$in. in diameter, whilst the holes marked B had best be $\frac{1}{8}$in. in diameter, since it is not possible to position them accurately in view of the possible variation of the secondary winding.

A small hand winding machine constructed from odds and ends to be found in most scrap-boxes would be very useful, and it will not be beyond the ingenuity of the reader to build something on the lines of that shown in the illustration. A revolution counter would be a useful addition, as it relieves the constructor of the tedium of counting the primary turns. The primary is wound in two sections, the first consisting of 1,500 turns of No. 34 S.W.G. enamel wire, which must be put on evenly though not necessarily in layer form. This section when finished should be not more than $\frac{3}{16}$in. deep. The finishing end is brought out through a hole in the side cheek and then two layers of empire cloth, cut just a shade wider than the inside of the bobbin, are put on to insulate primary from secondary.



The simple coil-winder mentioned in the text.



The complete transformer; note the position of the wooden blocks fitted between core and bolts.

The appropriate number of secondary turns can now be wound on, and this had better be done by hand so as to ensure a perfectly even winding with each turn touching adjacent ones. The wire is put on layer by layer and wound as tightly as possible, and when finished should take up not more than one-quarter of an inch in depth. The start and the finish of this coil pass out through the holes in the same cheek, but at the opposite end to the primary leads. Incidentally, a larger gauge, and for preference D.C.C. should be used for these. Two layers of empire cloth now follow, and finally the remaining 1,500 turns of the primary. One or two layers of empire cloth, or black bookbinding material, put on over the winding, will protect the coil and give it a finished appearance.

Assembly of the Core

We now come to the assembly of the core. The centre hole in the bobbin is packed with as many T pieces as it will accommodate, a note being made of the actual number used for an equivalent quantity of U pieces must be employed for the other half of the core. These are stacked together, placed in position so that the ends of the U's butt against the stroke of the T's, and then the aluminium end-clamps are gently eased over the bobbin, care being taken to see that the various leads are not broken or nipped between the core and the clamps. They are held in position by the bolts and nuts supplied with the clamps, but at this stage the nuts should be run up finger tight only,

TABLE OF SECONDARY WINDINGS.

Optimum Load for Output Valve.	Impedance of Loud Speaker.	Transformer Ratio.	Secondary Turns.	Wire Gauge S.W.G.
2,000 ohms	2.0 ohms	1 : 31.6	95	No. 20 (En)
2,000 „	7.5 „	1 : 16.3	184	No. 22 (En)
2,000 „	15.0 „	1 : 11.5	261	No. 24 (En)
3,000 „	2.0 „	1 : 38.7	72	No. 20 (En)
3,000 „	7.5 „	1 : 20.0	150	No. 22 (En)
3,000 „	15.0 „	1 : 14.1	212	No. 24 (En)
4,000 „	2.0 „	1 : 44.8	67	No. 20 (En)
4,000 „	7.5 „	1 : 23.1	130	No. 22 (En)
4,000 „	15.0 „	1 : 16.3	184	No. 24 (En)
5,000 „	2.0 „	1 : 50.0	60	No. 20 (En)
5,000 „	7.5 „	1 : 25.8	116	No. 22 (En)
5,000 „	15.0 „	1 : 18.2	165	No. 24 (En)

NOTE.—No. 20 S.W.G. (En) winds 22 turns per layer on bobbin.
No. 22 S.W.G. (En) „ 30 „ „ „
No. 24 S.W.G. (En) „ 38 „ „ „

Output Transformer Design—

as we have yet to adjust the air gaps in the core and fit the terminal strips.

The bolts are just long enough to allow two strips of either ebonite or paxolin $\frac{1}{8}$in. thick to be accommodated on each side between the nuts and the clamps. The terminal strips are $3\frac{3}{4}$in. long and $\frac{5}{8}$in. wide, and each carries two terminals consisting of $\frac{3}{4}$in. 4 BA screws and nuts, their positions being such that the heads are clear of the metal clamps. Although two terminals suffice for each winding, a small 6 BA screw with soldering tag and nut is provided on the primary terminal strip to act as an anchorage for the end of the first section and the beginning of the second part of this winding.

When these are fitted the air gaps can be adjusted by inserting strips of paper, empire cloth, or similar material cut $\frac{1}{2}$in. wide and $1\frac{1}{2}$in. long and 0.005in. thick, between the ends of the U stampings and the strokes of the T pieces. This is equivalent to No. 39 S.W.G., or twice the thickness of the paper on which *The Wireless World* is printed.

The writer is in favour of inserting thin strips of wood between the clamping bolts and the core to prevent the air gaps opening, for it is trusting too much to providence to expect them to remain correctly adjusted indefinitely, since a jolt might quite well open the gaps slightly, with the result that the primary inductance would be lowered by an appreciable amount and quite possibly reduced to half its normal value. Incidentally, the resistance of the primary is 205 ohms, so that when passing 50 mA. of D.C. 10 volts only will be lost.

Next Week's Issue *will be devoted mainly to short-wave problems and will include articles on the development of ultra-short-wave communication, a review of the short-wave receivers, adaptors and special components on the market together with*

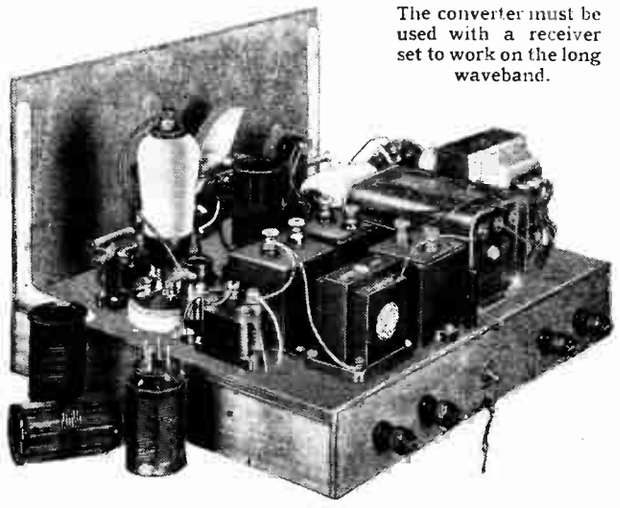
Full Constructional Details of a

Universal A.C. Short-wave Converter

An Easily Constructed Unit for Use with any Broadcast Receiver

THE converter operates on the superheterodyne principle, and enables the range of $12\frac{1}{2}$ to 100 metres to be covered with any reasonably sensitive broadcast receiver. It contains its own mains equipment, and no alteration whatever is needed to the receiver, which may be either of the straight or superheterodyne type.

Two variable-mu valves are employed, one as an ordinary H.F. stage and the other as an autodyne-frequency changer. Tuning is effected by a single control, and there are four plug-in coils to enable the full range to be covered.



The converter must be used with a receiver set to work on the long waveband.

LIST OF PARTS

After the particular make of component used in the original model, suitable alternative products are given in some instances.

1 Variable condenser, 0.00015 mfd. (Eddystone)	**Cyldon type SW15**
1 Slow-motion dial with micrometer adjustment	**Igranic type 2296/56**
2 S.W. H.F. chokes	**Igranic**
1 S.W. H.F. choke	**Eddystone**
2 5-pin valveholders	**Eddystone type 500**
1 4-pin valveholder	**Eddystone type 501**
1 Set S.W. coils, types 2BB, LB, Y and R	**Eddystone 932**
2 Fixed condensers, 0.001 mfd., 1,000 v. D.C. test	**T.C.C.**
3 Fixed condensers, 0.001 mfd.	**T.C.C. type 34**
2 Fixed condensers, 0.00005 mfd.	**T.C.C. type 34**
4 Fixed condensers, 0.01	**T.C.C. type 34**
2 Fixed condensers, 4 mfd., 200 v. D.C. working	**T.C.C. type 61**
1 Fixed condenser, 4 mfd., 400 v. D.C. working	**T.C.C. type 80**
1 Smoothing choke, 25 h. 850 ohms (Fris. type C30A, model 18M)	**R.I.**
1 Mains transformer, shrouded with screened primary Secondaries, 110 v. 75 m.a., 4 v. 2 amps, C.T.	**Sound Sales type SS Shielded**
1 Metal rectifier	**Westinghouse H.T.6**
1 Q.M.B. On-off switch	**Bulgin type S89**
1 Valveholder bracket	**Peto-Scott**
1 Resistance, 150 ohms	**Claude Lyons**
1 Resistance, 600 ohms	**Claude Lyons**
2 Resistances, 20,000 ohms	**Claude Lyons**
2 Resistances, 30,000 ohms (Dubilier, Erie)	**Claude Lyons**
1 H.F. choke	**McMichael Binocular Junior**
4 Terminals, A.E. Output—Output	**Belling-Lee, type "B"**
1 Plymax baseboard, 12×14×3/8	**Peto-Scott**
Valves: 1 Mazda AC/SGVM and 1 Mazda AC/S1VM	

DISTANT RECEPTION NOTES.

MANY who did not happen to see in the daily papers a report of the fate that it had met wondered why it had suddenly become impossible to hear Radio Toulouse. The station was completely gutted by an outbreak of fire, caused, it is reported, by some smoker's carelessly thrown-down cigarette, and as the new plant has been ready for a long while it is exceedingly unlikely that anything will be done as regards repairing it. Possibly the destruction of the old transmitter will induce the French Government to grant their long-delayed permission to the new station to come into regular operation. We shall miss the 8-kilowatt Toulouse, one of our oldest and most faithful European sources of entertainment; we might regret its demise still more were it not for the very poor quality which has characterised its transmissions for a long time now. The tests that took place some time ago have shown that the new plant will provide not only good field strength, but also excellent quality in this country.

Station of 200 kW.

Luxembourg is becoming more and more of a nuisance on the long waves, and it is to be hoped that steps will be taken to prevent this unauthorised and unjustifiable grabbing of a wavelength. It cannot be claimed that 200 kilowatts and a wavelength of 1,250 metres are necessary to cover properly the minute Duchy of Luxembourg. The country has already an authorised wavelength in the lower part of the medium waveband which should enable an adequate programme service to be provided for such a comparatively small area.

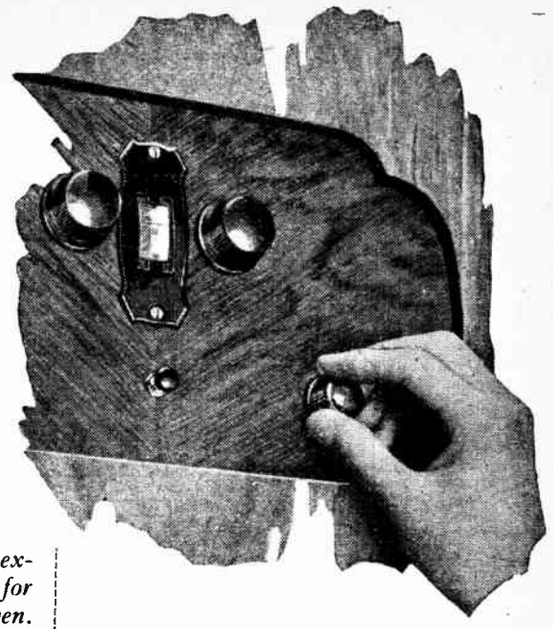
On April 24th two noteworthy events occur. The B.B.C.'s Western station near Minehead is to begin tests, and the Athlone station is to start sponsored programmes. One only hopes that the Irish broadcasting authorities will not allow advertising to be overdone, as it has been in some other countries. In Canada a very wise step has been taken in this connection; it has been laid down that no station may devote more than five per cent. of its programme time to advertising matter.

Good Reception Conditions

The early part of April has brought the most remarkable conditions for long-distance reception that I can remember in any spring. One would have thought that the long-continued spell of warm dry weather would have led to a marked falling off, but just the opposite result has occurred. On many recent evenings between forty and fifty Continental stations have been receivable at good strength.

A great improvement is noticeable in the lower part of the medium waveband, where Hörby, Rennes, Fécamp, Nürnberg and Trieste are all worthy of note. Very fine reception, too, has been obtained from stations near the top of this waveband which a short time ago were not quite up to the mark. Brussels No. 1, Budapest, Munich, Vienna, Florence, Prague and Langenberg are all quite excellent. Other stations well worth attention are Katowice, Rome, Hamburg, Strasbourg, Göteborg, Bordeaux and Hilversum. D. EXOR.

Manual Volume Controls



The Importance of Tone Correction

By L. E. T. BRANCH, B.Sc.

IT is generally recognised that when the volume control is turned down, low notes are weakened out of proportion to high notes. In this article the reasons why this happens are explained and practical circuits for overcoming this defect are given.

LATELY the subject of volume control has been receiving a considerable amount of attention. It is a subject which, in wireless, is as old almost as crystal sets, and whatever may be achieved with various forms of anti-fading devices which keep the input to the detector valve constant, or nearly so, these can never remove the necessity for some form of manual volume control to provide for differing individual tastes.

Usually listeners of more advanced years prefer their music "soft," while the "younger bloods" crave for it "full strength," especially jazz music—but even those who like a high intensity for serious listening prefer it "turned down" when the music is to form only a background to other things. In short—the volume from the loud speaker itself can *never* be automatically controlled, and manual adjustment must stay. The automatic volume control which is so much to the front at the moment usually implies "keeping the input to the detector valves the same for all stations and conditions." The manual volume control which must therefore always be provided on a receiver, as with a pick-up, should preferably control the audio frequency reproduction, that is to say, it should be a means of varying the magnification of the audio frequencies after the detector, so that this, too, is really "volume control." The distinction is that the automatic arrangements should precede the detector, especially if it is a diode, so as to keep its input constant, and therefore its efficiency and its freedom from distortion constant, while the manual control should follow the detector. Since it controls audio frequencies it is closely allied to the volume control for a gramophone pick-up. The purpose of the present article is to put forward practical arrangements for post-detector manual volume control and also manual volume control of the gramophone pick-up output, and not to touch upon A.V.C., which has been dealt with in numerous articles in *The Wireless World*.

It is well known that the sensitivity curve of the human ear is not a straight line, but falls off very considerably at the lower frequencies, and also to some extent at the higher frequencies, so that at different sound intensity levels the "character" of the reproduction appears different even if the overall response curve of the reproducer remains unchanged. This is probably the fundamental reason why the "high intensity" individual moans when the intensity is considerably reduced—he has become so accustomed to hear all the frequencies, especially the lower ones, well reproduced that at the lower intensity he painfully notices their absence—because to the ear they have fallen below the sensitivity limit, and are therefore absent.

Compensated Control

It is the general experience that this reason accounts more for the complaint in question than does the mere reduction of the intensity. The same applies to the highest frequencies, but to a very much lesser degree in practice—so that, while it is desirable to design the manual volume control so that it lowers the intensity of the lowest and highest frequencies to a less extent than it does the middle frequencies, it is often sufficient to design the control so as to lower the lowest frequencies to a less extent than the rest, which type of control can be extremely simple. Those who have once tried a volume control of this nature immediately appreciate the point that at low intensities it is the *apparent* lack of bass rather than the mere low intensity which is so unsatisfactory, and even those who always prefer their music "soft" also consider the arrangement an improvement, hence usually everyone is pleased.

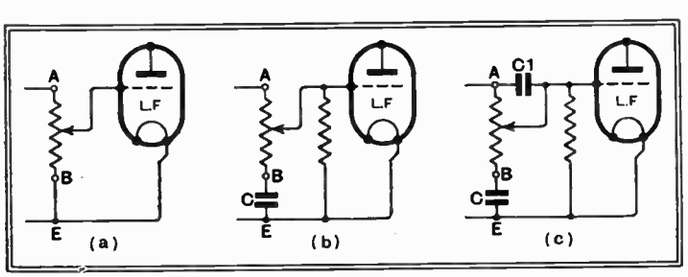


Fig. 1.—Simple circuits which provide for a compensating volume control.

Some Practical Examples

Some of the simplest ways of arranging a type of manual volume control which gives the desired result are shown in Fig. 1, and these have the important advantage that they can be applied in a few moments to almost all existing manual volume controls, but only, of course, if they are of the post-detector kind. In Fig. 1 (a), the grid of the L.F. valve is connected to the arm of a potentiometer so that the input to the valve increases as the arm slides along towards A, and decreases as the arm slides towards B. In Fig. 1 (b), we have a similar arrangement, except that there is now inserted the condenser C between the end B of the potentiometer and the "earth line" E. Incidentally, a one megohm grid leak is connected across the grid and E to enable the grid to receive its proper bias. In this arrangement the working potentiometer is really now the original potentiometer, plus the condenser, i.e., A to E, although, of course, the arm can only move over the amount A to B. The effect of this is that, as the arm of the potentiometer is moved towards B in order to decrease volume, the condenser C remains always wholly in circuit, and since the impedance of a condenser varies widely with frequency the amount of signal picked off by the arm of the potentiometer is greatest at the lowest frequencies, and the proportion of these frequencies will be greatest at lowest volume; in other words, as the volume is lowered the lowest frequencies are not decreased in strength as much as are the middle and upper frequencies. To take a working example, suppose that the resistance of the potentiometer AB is 250,000 ohms and the condenser C has a capacity of 0.1 mfd.

Manual Volume Control—

The impedance of this condenser at 50 cycles is $\frac{106}{2\pi \times 50 \times 0.1} = 33{,}000$ ohms, and at 5,000 cycles is 330 ohms. Therefore, while at full volume, it is clear that all frequencies are fully and equally transferred, on the other hand, at low volume, say, when the arm X is at 10,000 ohms from B, a 50 cycle frequency is transferred sufficiently approximately in the proportion

$$\frac{\sqrt{10{,}000^2 + 33{,}000^2}}{250{,}000} = 13\%,$$

while a 5,000 cycle frequency is transferred in the proportion

$$\frac{\sqrt{10{,}000^2 + 330^2}}{250{,}000} = 4.1\%.$$

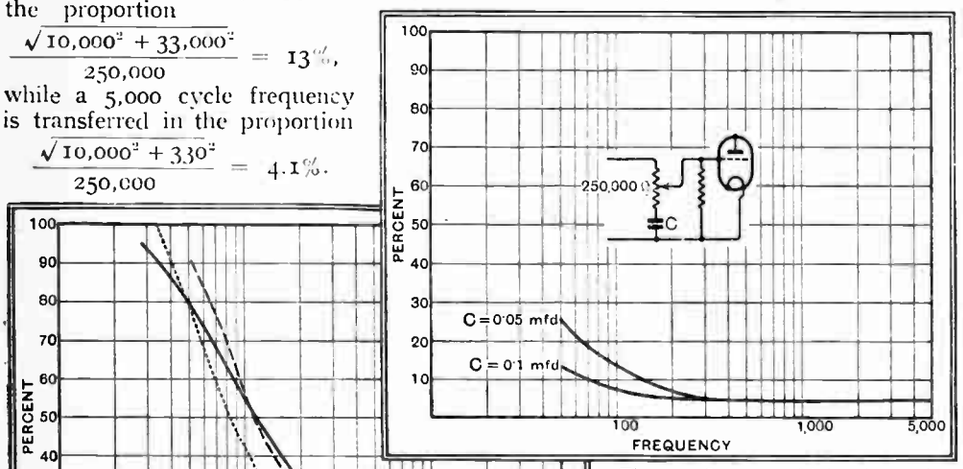


Fig. 2.—Curves which show the effect of frequency response produced by changes made in volume. On the right curves are given with different values of condenser C, while on the left is a group of curves to be expected when compensated volume controls, of the type shown in Fig. 3, are employed.

This is shown more fully by the curves of Fig. 2 (right), which also show the effects of decreasing the size of the condenser to 0.05 mfd., thereby increasing still further the retention of the low frequencies at low volume settings. Of course, the best value of condenser will have to be chosen to suit individual requirements, but for those who require a good starting point for experiment the values recommended are those set out in the second column of the table. When experimenting with other values of the condenser C remember that the low frequencies are *increased* by *decreasing* the capacity of the condenser. It is usually advisable to decrease the capacity when this method is used to control the volume from a gramophone pick-up on account of the great deficiency of the low frequencies as recorded on the records themselves.

If it is desired to retain also the highest frequencies another fixed condenser C1, shown in Fig. 1 (c), is included. This condenser has a relatively low capacity, as its function is to pass the highest frequencies direct to the grid of the valve. Suggested values which have been tried in practice are given in the third column of the table. The high frequencies are, of course, increased if the capacity of C1 is increased, and vice versa to suit individual requirements.

Other convenient methods of achieving a similar result are shown in Fig. 3. These methods are particularly useful when applied to a gramophone pick-up, because variation of the volume control also varies the load on the pick-up, the load increasing with increase of volume, so that the function of the control is of a very complex nature, not to be considered in detail here.

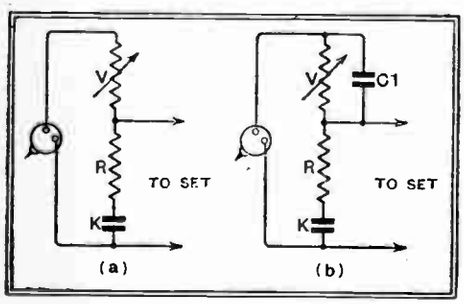


Fig. 3.—Methods of compensated volume control particularly suitable for use with pick-ups in gramophoue reproduction.

Resistance.	C.	C1.
Ohms.	Mfd.	Mfd.
1,000,000	0.025	0.0002
500,000	0.05	0.0005
250,000	0.1	0.001
100,000	0.25	0.002
50,000	0.5	0.005
10,000	2	0.02

Since in most cases gramophone pick-ups give more output than is normally required, this type of volume control has the very distinct advantage that when not "full on" it compensates for the falling-off of the recording curve at low frequencies, to an extent which is a maximum possible with such simple apparatus. It is true that the volume cannot be turned down to nil, but no one wishes to play a record in such circumstances. An example will help to illustrate the operation of the method and give an idea of the compensation which can be effected.

The schematic arrangement is shown in Fig. 3 (a), and consists of a variable resistance V in series with a fixed resistance R and a condenser K. The pick-up is connected, as shown, to the extreme ends, while the leads to the set embrace only the resistance R and condenser K. To vary the volume only the resistance V is varied, and this may obviously be a potentiometer in which only two terminals are used, so that it functions merely as a variable resistance. R should have a value of not more than one-tenth of the total resistance of V, while the impedance of K should usually be approximately equal to the value of R at 1,000 cycles. It is clear that, as the resistance V is increased, the volume falls, although at low frequencies it falls less than at the middle and upper frequencies on account of the variation of impedance of the condenser K with frequency. The principle is thus somewhat similar to the previous case, and, as would be expected, the high frequencies can also be retained to an increased extent by shunting the resistance V with a small fixed condenser, preferably of about one-twentieth the capacity of K, Fig. 3 (b). This arrangement, when used with a pick-up, has a rather complex action owing to the variation of load across the pick-up, both for volume variation and frequency difference.

A fairly close calculation can be made and the full line curve (A) in Fig. 2 (left) shows the calculated result expected, in which K is 0.0025 mfd., R is 80,000 ohms, and V is a one megohm variable resistance all in use, i.e., minimum volume, as will often be the case in practice with modern sensitive pick-ups. If a greater range of control of volume is required it is usually best to retain V as one megohm (variable), and alter the values of R and K both in the same proportion; thus, if R is 20,000 ohms and K is 0.01 mfd., a wider range is obtained.

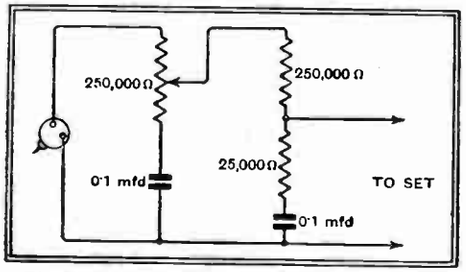


Fig. 4.—A further circuit for gramophone reproduction recommended for use with sensitive pick-ups.

The inverse of the recording curve is shown as a dotted line on the same graph, and, as this is the curve which should be aimed at in designing the volume control, it is gratifying to note the close similarity. The broken line curve (B) shows the results obtained in practice, using the values used for calculating the full line curve, while curves (C) and (D) show the calculated and measured effect of the use of a 0.0001 mfd. condenser across V. In record reproduction it is sometimes desirable to include such a small condenser (which can be variable) across V if the highest frequencies have been worn from the record or are attenuated by the amplifier or speaker.

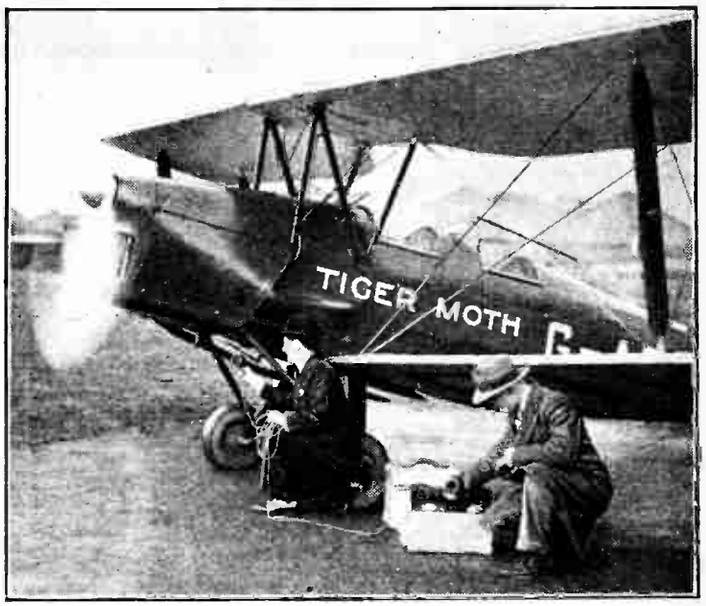
In conclusion, Fig. 4 shows a further development which can be recommended when the pick-up is much more sensitive than is normally required to operate the amplifier. This also has the advantage of giving a very great range of control of volume, and retains completely the full correction for the recording curve.

ESTIMATING LOUDNESS

Is the Ear an A.V.C. Device?

By R. T. BEATTY, M.A., B.E., D.Sc.

RECENT experiments, in which nearly two hundred observers took part, go to show that the ear does not respond proportionately to increases in sound intensity. It appears, for example, that in cases where the loudness of a sound is actually increased eight times according to the decibel scale, mental estimates will assess the final result as being only twice the original volume.



Noise measurement of an aeroplane engine by a Western Electric sound meter.

LET me begin by registering a protest against a certain aspect of the scientific mind. Physicists and engineers express phenomena in terms of units such as inches, watts, candle-power, and so on, which is a perfectly legitimate thing to do, but they also show a tendency to assume that when phenomena are perceived by means of the human senses the sensations aroused in the brain are to be measured by scales similar to those used by the scientist.

A few examples will show how grotesque are the results to which such an assumption leads. A refuse heap is objectionable in a residential district; hence if the heap is doubled in size it becomes twice as objectionable. Ten flowers in a pot are twice as pretty as five flowers. Two crying babies are annoying, but if one baby is removed the annoyance is halved.

The last example introduces the subject of scales of loudness. Here again physicists have produced a *measure* of loudness which does not agree with our *sensations* of loudness. The method in common use is to compare any sound with a pure note of frequency 1,000 cycles per second which sounds equally loud. Then, if equality of loudness occurs when the 1,000-cycle note is 30 decibels above the threshold of hearing, the loudness of the sound is said to be 30 units; if equality occurs at 60 decibels the loudness is said to be 60 units. But such a scale of loudness is based on scientific measurements of power expressed in watts and does not help us to find the power ratio between two sounds when one seems to our natural judgment to be twice as loud as the other. In fact, as will be shown presently (Fig. 2), when the loudnesses on the physicist's scale are 60 and 30, the loudness ratio on our intuitive scale is 10 to 1. The contrast is between the roar of Piccadilly Circus and the murmur of a quiet suburban street.

But, you may ask, is the intuitive scale to be relied on? Is it a scale which remains invariable from day to day, and is *my* mental scale of loudness the same as *your* scale? Recent experiments[1] disclose that consistent estimates are made by any one observer, and that the differences between one observer and another are small enough to allow a useful scale of natural loudness to be constructed. In these experiments an observer listened to two similar sounds, A and B, which were equally intense at the beginning of the experiment, and hence equally loud. He then increased the intensity of B till, in his judgment, it was two, three, or four times as loud as A; 175 observers took part in the tests, and 4,500 observations were made, with the results shown in Fig. 1, which gives the smoothed curve.

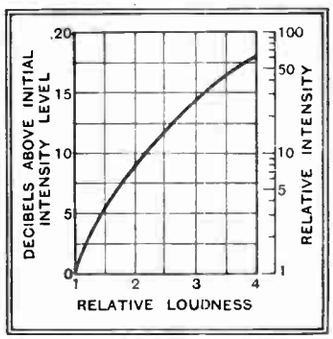


Fig. 1.—Curve showing the apparent increase in loudness noted in the course of 4,500 observations made by 175 listeners. When the intensity level rose by 9 decibels, the loudness was judged to be twice its original strength.

It appears from Fig. 1 that when the intensity level of B rises by 9 decibels the loudness is judged to be twice that of A, while a further rise of 9 decibels once more doubles the loudness. When A was brought up to this new level so as to start again with equal loudnesses at the higher level it was found that a further rise of 9 decibels in the level of B made its loudness double that of A, and so on. Expressing these results over the whole range of intensities from the threshold of hearing upwards, we get the table given on the next page.

[1] "Loudness and Intensity Relations," by Ham and Parkinson. *Journal of the Acoustical Society of America*, April 3rd, 1932, page 511.

Fig. 2 shows the curve obtained from this table. It a sound is raised 30 decibels above the threshold—that is, if its intensity is made 1,000 times as great—the loudness is only tenfold the threshold loudness. Similarly, if the intensity is a million times threshold the loudness is only 100 times threshold. Hence each of us judges loudness by an intuitive or mental scale which is quite different from the scale of actual intensity of the sound.

Intuitive Estimates

Now this is a most remarkable thing. For all of us have had during our lives plentiful opportunities of comparing sounds by means of their intensities. We can recall the noise produced by eight cars and compare it with that produced by one car; we can compare the volume of sound due to a single speaker with that due to eight people talking at once. And yet, in

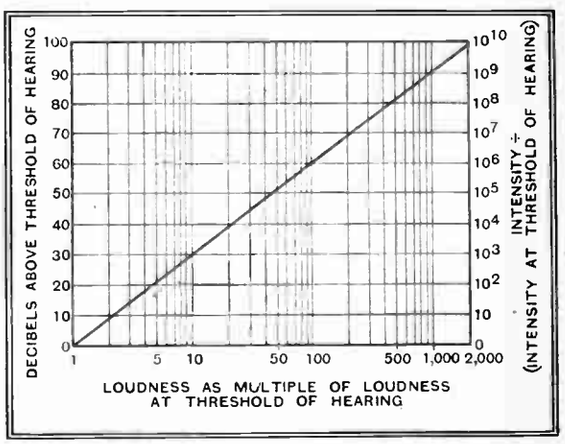


Fig. 2.—The curve obtained from the table at the end of the article, covering the whole range of intensities from the threshold of hearing upwards.

Estimating Loudness—

spite of this combined evidence offered to eye and ear, we persist in saying that one of these sounds is twice (not eight times) as loud as the other.

Let us see whether other senses give such anomalous results. For example, what about vision? Does a room look twice as bright with two lamps as with one? We must be careful in interpreting our sensations in this case, for the eye has self-regulating mechanisms which are denied to the ear. When we pass from sunlight into a curtained room the eye gradually adapts itself to the new conditions both by enlargement of the pupil and by the building up in the retina of materials which are sensitive to light. Hence, in order to avoid these complications, we must make our comparisons quickly. A simple method is to take a number of photographic plates which have been slightly fogged and to look for a moment through each of them in turn at some bright object, choosing the plate which seems to diminish the brightness to one-half. When such a plate is tested in a photometer it is found to transmit only about one-eighth of the light, so that our mental estimate of brightness ratios agrees fairly well with the scale of loudness ratios shown in Fig. 2. In both cases the *objective* intensity ratio is roughly 8 when the *subjective* intensity ratio is 2.

It would seem, then, that there is some mechanism common to eye and ear which is responsible for this peculiar scale of sensation, and we turn for information to the physiologists, who, working on the borderland of the brain itself, have intercepted and deciphered the messages which stream along the sensory nerves—messages which carry in code form all the information which reaches us from the outside world. In all types of nerves which have been examined the messages pass as a series of discontinuous impulses; they are probably chemical in nature, but are accompanied by electrical effects which allow the impulses to be picked up by electrodes placed on the nerve, and after amplification to be recorded on a string electrometer. It appears that the effect of an increased stimulus is an increased number of nerve impulses per second. Quantitative results on the auditory nerve are difficult to obtain, but experiments on all other types of nerve show that the frequency of nerve impulses increases more slowly than does the intensity of the applied stimulus. Take, for example, the experiments made by Adrian, at Cambridge, on the optic nerve of the conger eel (Fig. 3). The frequency of the nerve impulse is doubled when the intensity of the light falling on the retina increases from 2.5 to 19 (about 8-fold).

Intensity Relative to Threshold Intensity.	Decibels Above Threshold.	Relative Loudness Judged Intuitively.
1	0	1
8	9	2
$8^2=64$	$9\times2=18$	$2^2=4$
$8^3=512$	$9\times3=27$	$2^3=8$
$8^4=4,096$	$9\times4=36$	$2^4=16$
$8^5=32,768$	$9\times5=45$	$2^5=32$
$8^{10}=1,067,000,000$	$9\times10=90$	$2^{10}=1,024$

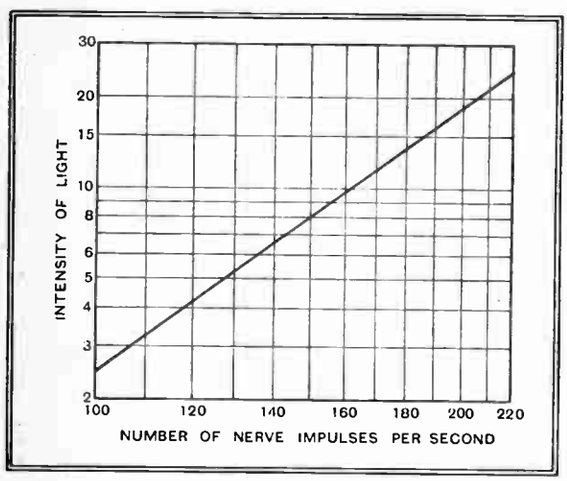


Fig. 3.—Does the nervous system function on the lines of automatic volume control? Auditory nerve measurements are difficult to obtain, but the above curve, showing the response of the optic nerve of a conger eel to light sensations, indicates that nerve impulses are doubled in frequency when the intensity of light increases eight times.

Now put all these facts together. An 8-fold increase in sound intensity doubles the loudness, while in light intensity it doubles the brightness, and in the one case which has been examined it doubles the rate at which messages are sent to the brain along the optic nerve. Even if we heavily discount the agreement between these figures on the score of insufficient experimental accuracy we still have good grounds for concluding that *our estimates of loudness or brightness express correctly in the domain of consciousness the messages which travel along the corresponding sensory nerves.*

It is noteworthy that in these estimates we are unable to sum two loudnesses to make a third: our attitude is rather to regard one sensation as a multiple or a fraction of another. It is as if this part of the brain had only learnt the tables of multiplication and division, without ever reaching addition and subtraction.

BLUE PRINTS

For the convenience of constructors full sized blue prints are available of the following popular *Wireless World* sets that have been recently described, price 1s. 6d., post free:

Monodial A.C. Super. (Booklet, price 1s. 8d. post free.)
Short Wave Two. (November 4th and December 23rd, 1932.)
Monodial D.C. Super. (December 2nd and 9th, 1932.)
Straight Three. (December 16th, 1932.)
Modern D.C. Three. (December 30th, 1932, and January 6th, 1933.)
All-wave Monodial Super. (January 27th and February 10th, 1933.)
Modern A.C. Quality Amplifier. (February 17th, 1933.)
Ferrocart III. (February 24th and March 3rd, 1933.)
* **A.V.C. Monodial Super.** (March 17th and 24th, 1933.) With 2½ watt or 5 watt amplifier. State which is required when ordering.
The Class "B" Ferrocart Receiver. (April 17th, 1933.)

* Price of this blue print is 2/-.

These can be obtained, from the Publishers, Iliffe & Sons, Ltd., Dorset House, Stamford Street, London, S.E.1.

CLUB NEWS

International S.W. Club

RECTIFICATION was the subject chosen by Mr. D. Ashby, A.C.G.I., B.Sc., for his recent lecture before the International Short Wave Club (London Chapter) at the R.A.S.C. Hall, Wandsworth Road, S.W. The Club will meet again on April 28th and May 19th.

European Representative: Mr. A. E. Bear, 10, St. Mary's Place, Rotherhithe, London, S.E.16.

A New Society in Sidcup

A SUCCESSFUL inaugural meeting of the Sidcup and District Radio Club was recently held at the Regal Cinema, Sidcup, the subject of discussion being "Man-made Static." Several technical members offered their services in a campaign against local electrical interference.

Radio manufacturers who are willing to give lectures and demonstrations are invited to write to the Hon. Secretary. The meetings are held every Wednesday, at 8 p.m., in the Regal Cinema, and prospective members are more than welcomed.

Hon. Secretary: Mr. F. E. W. Towers, 22, Crombie Road, Sidcup, Kent.

A New Way with Slugs

THE electrocution of slugs was vividly described by Mr. F. G. Sawyer, recently, lecturing before the Croydon Radio Society on "Mains Transformers and Their Manufacture at the Works of Partridge, Wilson and Co." Mr. Sawyer described how one very useful application benefited the farmer, for a transformer was made to make and break so that a cheerful 80,000 volts wandered on to a certain section of the land, slaying all slugs in its path.

Hon. Secretary: Mr. E. L. Cumbers, 14, Campden Road, South Croydon.

The Late Herr Schäffer

THE unexpected passing, on March 24th last, of Walter Schäffer, Chief Engineer of the Reichs-Rundfunk-Gesellschaft, and of his wife came as a great shock to his many friends.

Schäffer's great achievements were, undoubtedly, accomplished in the domain of broadcasting technique, writes a correspondent.

The son of a Jewish merchant, of Breslau, he was born in that city on September 20th, 1881.

At the end of the War, in which he was attached to the Airship Service, he was engaged by the Telefunken Company as an engineer for their Transmitter Laboratory. Very soon he was made chief of the Transmitter Laboratory.

When, subsequently, the first experiments in broadcasting were made in U.S.A., Schäffer at once recognised its great significance, and turned his whole attention to the development of broadcast transmitters. The first German transmitter, that of the postal authorities at the Berlin Voxhaus, was built under his direction.

Schäffer was eventually appointed head of the Technical Section at the Reichs-Rundfunk-Gesellschaft, the technical side of all the other German broadcasting companies (with the exception of Munich) being put under the direct control of the R.R.G., and thus under Schäffer.

Schäffer took part in all the deliberations of the Technical Committee of the Union Internationale de Radiodiffusion as the representative of the R.R.G., and on the question of distribution of wavelength he put up many a strong fight in the interests of Germany.

His numerous journeys abroad gave him a good insight into foreign broadcasting organisations, and by reason of his charming manner and his great technical talents he made many friends abroad.

NEWS *of the* WEEK

Current Events in Brief Review

Television in the West

PLANS are in hand for the formation of the Western England Television and Scientific Society for the benefit of all interested in television, talking films, and kindred subjects. Correspondence should be addressed to Mr. H. Montague Smith, Eden House, Eden Grove, Filton, Bristol, 7.

Awful Prospect?

DISTINGUISHED guests at the recent opening of the new Marignan-Pathé-Nathan Cinema in the Avenue des Champs Elysees, Paris, were filmed on arrival and, before leaving the theatre, enjoyed seeing and hearing themselves on the screen.

In a few years' time it may be possible to televise the arrival and departure of cinema patrons for the benefit of their respective families.

Short Waves to the Rescue

MARCHESE MARCONI has offered to install a short-wave wireless station at the new hospice which four St. Bernard monks are founding nearly 15,000ft. above sea level in the heart of the Himalayas. The monks intend to carry out rescue work on the borders of India, Tibet, and China, the hospice being at a place called Si La. It is believed that short-wave wireless will be of exceptional value for this purpose.

High, Medium, or Low?

NO longer will it be necessary to argue as to the precise extent of the low, medium, and high frequencies if the International Radio Consulting Committee obtains acceptance of its proposals for a new classification as follows:—Low frequencies, up to 100 kilocycles (3,000 metres); medium frequencies, 100 to 1,500 kc. (200 metres); medium high frequencies, 1,500 to 6,000 kc. (50 metres); high frequencies, 6,000 to 30,000 kc. (10 metres); very high frequencies, above 30,000 ks.

100kW. from Portugal?

WILL Portugal be contributing another 100 kilowatts to the broadcasting power now daily launched on the European ether? We learn that the 20 kW. station now being erected at Lisbon by Standard Telephones and Cables, Ltd., for the Portuguese Government, is so designed that its power can be increased to 100 kW. Tests will probably begin in September on a wavelength of 283.6 metres. Wavelengths of this order are used by many amateur Portuguese stations, which will either have to "go off the air" or revert to short-wave transmission. No tax is paid by the 30,000 listeners in Portugal, but the Government is considering the introduction of a licence fee when the new station opens.

Doing Without G.M.T.

GREENWICH time signals mean nothing to New Zealand, where listeners prefer to check their time daily by the signals radiated from Washington, U.S.A., and Nauen, Germany. The Greenwich signals are received only at 6 a.m. and 10 p.m., and both times are inconvenient for broadcasting purposes

Radio Commission Goes Marching On

FEARS that Democratic administration might abolish the American Federal Radio Commission have been partially set at rest by the announcement of several new appointments to the Commission. Judge E. O. Sykes, who is Southern Zone Commissioner, has been elected chairman, writes our Washington correspondent.

The Radio Commission is said to be costing something like 750,000 dollars annually—an important consideration in these days.

Looking to Lucerne

NORTH African listeners, according to a correspondent, would be happier folk if Germany had never opened that big station at Stuttgart. They find that the reception of Algiers, although the station has a power of 13 kilowatts, is ruined by the German.

The Rabat station, too, is being badly jostled by the new Athlone transmitter, and this is yet another reason why Moroccan listeners are waiting impatiently for the Lucerne Conference.

Short Waves from Germany

THE German broadcast system owns two short-wave transmitters. These are at Zeesen and, depending upon the wavelength and aerial used, they employ the following call-signs: DJA, DJB, DJC, DJD, DJA and DJB operate on the directional aerials; DJD is used for special transmissions to North America on 25.51 metres; while DJC is used for the same purpose on a wavelength of 49.83 metres.

Why U.S. Amateurs are More Venturesome

THE "here-to-day-and-gone-to-morrow" atmosphere has departed from American amateur radio with the welcome decision of the Federal Radio Commission to extend all existing licences for a period of two years and to issue new licences for three-year periods. Besides saving State time and money, the new measure is encouraging many amateur transmitters to experiment more ambitiously. The American Radio Relay League seems hopeful of an increase in new inventions.

New Blood in German Broadcasting

DR. KURT MAGNUS, the founder of the original Berlin Funkstande and managing director of the existing Reichs Rundfunk Gesellschaft, has resigned his position in company with many other important officials. His successor is Dr. Kruckenburg, who retains his post as Radio Commissioner and is at the same time chief of the broadcasting department of the "Ministry for the Enlightenment of the People and of Propaganda." According to our Berlin correspondent, Dr. Kruckenburg's tenure of three important posts gives him immense power while simplifying the German broadcasting organisation.

Dr. Hubmann succeeds the late Mr. Schäffer as Chief Engineer. German broadcasting is now completely in new hands.

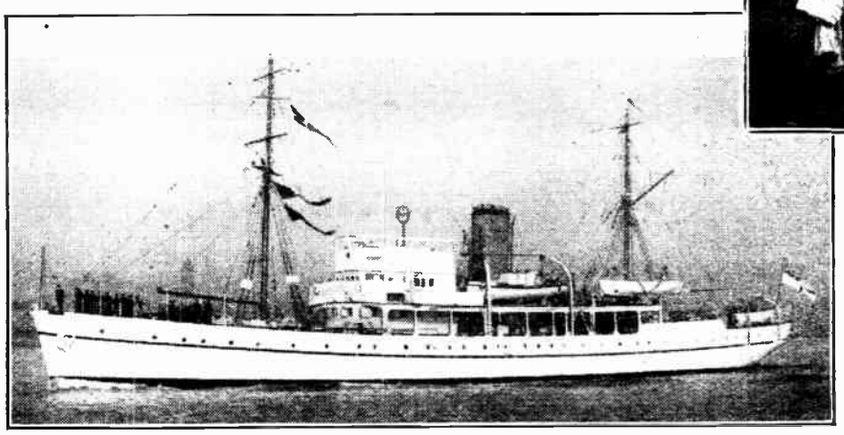
R.S.A. Exhibition

IT is to be hoped that the Royal Society of Arts will be successful in its appeal for financial help to continue the annual competitions of industrial designs. Wireless enthusiasts will recollect that from year to year the competitions have offered scope for the design of radio cabinets, the preparation of radio advertisements and other activities for enhancing the attractiveness of wireless. The designs sent in for this year's open competition are to be shown in the Exhibition Pavilion of the Imperial Institute, South Kensington, London, S.W., from August 5th to August 31st (Sundays included).

Piccard Enlists Amateur Aid

WHEN Professor Piccard makes his next ascent by balloon into the stratosphere he will have the co-operation of Europe's most efficient amateur transmitters in enabling him to keep in touch with the outside world. The "Ragchewers' Club" which, with headquarters in Holland, numbers among its members the cream of European amateurs—is placing its services at the disposal of the Professor.

The next ascent into the stratosphere will be made some time between June and September. Every effort will be made to maintain communication with the balloon, which will be carrying a short-wave transmitter.



WIRELESS FOR NAVAL SURVEY. On the left is H.M.S. Challenger, which has just left Portsmouth to carry out survey work, with the aid of wireless, off the coasts of Labrador. Note the D.F. aerial on the bridge. Above: Sailors examining transportable sets.

Mr. Gladstone Murray in Canada

ARRANGEMENTS for a new Canadian radio network under the auspices of the Canadian Radio Commission are progressing favourably. Major Gladstone Murray, who has been "lent" by the B.B.C. to act as consultant to the Commission, is now in Ottawa. Plans are under way for linking all Canadian stations by land-line for programmes to be provided daily by the Commission between 6 and 11 p.m. These programmes will be regularly broadcast by the three stations recently purchased from the Canadian National Railways.

Atwater Kent Superhetero

An A.C. Set for the Short and Medium Wavebands

ALTHOUGH the normal broadcasting bands offer sufficient variety of entertainment for general requirements, there is a growing interest in the possibilities of short-wave reception. It is interesting to see, therefore, a receiver which covers the range of 14-550 metres, but not the long waveband, in four bands of 21.2-8.2 Mc., 9.2-3.6 Mc., 4-1.5 Mc., and 1,500-550 kc., with built-in coils. Ten valves are employed, and four of these are of the variable-mu screened H.F. pentode type; single control ganged tuning is operative on all wavebands, and the frequency changer is of the two-valve type.

The simplified circuit diagram of the set, omitting wave range switching, is illustrated, and the coils shown are those for the medium waveband. It will be seen that the H.F. stage is preceded by an inductively coupled band-pass filter, but it is not so obvious from the circuit that the aerial coupling to the first filter section is of a type specially designed to maintain high efficiency at the low-frequency end of the tuning range.

The first detector and the H.F. valve are coupled by means of the tuned grid circuit, so that there is a total of three tuned pre-selector circuits. A triode valve is employed for the oscillator, and it is biased by a grid leak and condenser, the oscillator padding condenser acting not only to maintain correct ganging, but also as the grid condenser. The method of coupling the oscillator to the first detector is, at first sight, a little peculiar. It should be understood that American H.F. pentodes have the suppressor grid brought out to one of the pins in the base, unlike the British types, in which this grid is internally connected. When the valve is used as an amplifier this grid is usually connected directly to the cathode, but in the first detector stage the connection is made through an H.F. choke, and the oscillator reaction coil is included in the first detector cathode circuit. Cathode injection is thus used, but the suppressor grid is maintained at constant H.F. potential.

Features: *Ten-valve A.C. multi-range superheterodyne with single-dial tuning, moving-coil speaker, automatic volume control, and push-pull output stage. Wavelength range 14-550 metres with built-in coils. Variable-mu H.F. pentodes for the H.F., first detector, and both I.F. stages. Triodes for the oscillator, A.V.C. and second detector, and pentodes in the output stage; valve rectifier. Three pre-selector circuits are operative on the medium waveband, and two on the short wavelengths. The six I.F. circuits are tuned to 472.5 kc. The controls include: (1) Tuning control with calibrated and illuminated dial and neon tuning indicator. (2) Combined wave range and local-distance switch. (3) Combined mains on-off switch and manual volume control. (4) Tone control switch.* ***Price:*** *45 guineas.* ***Suppliers:*** *G. A. Brittain, Ltd., 5, Hanover Square, London, W.1.*

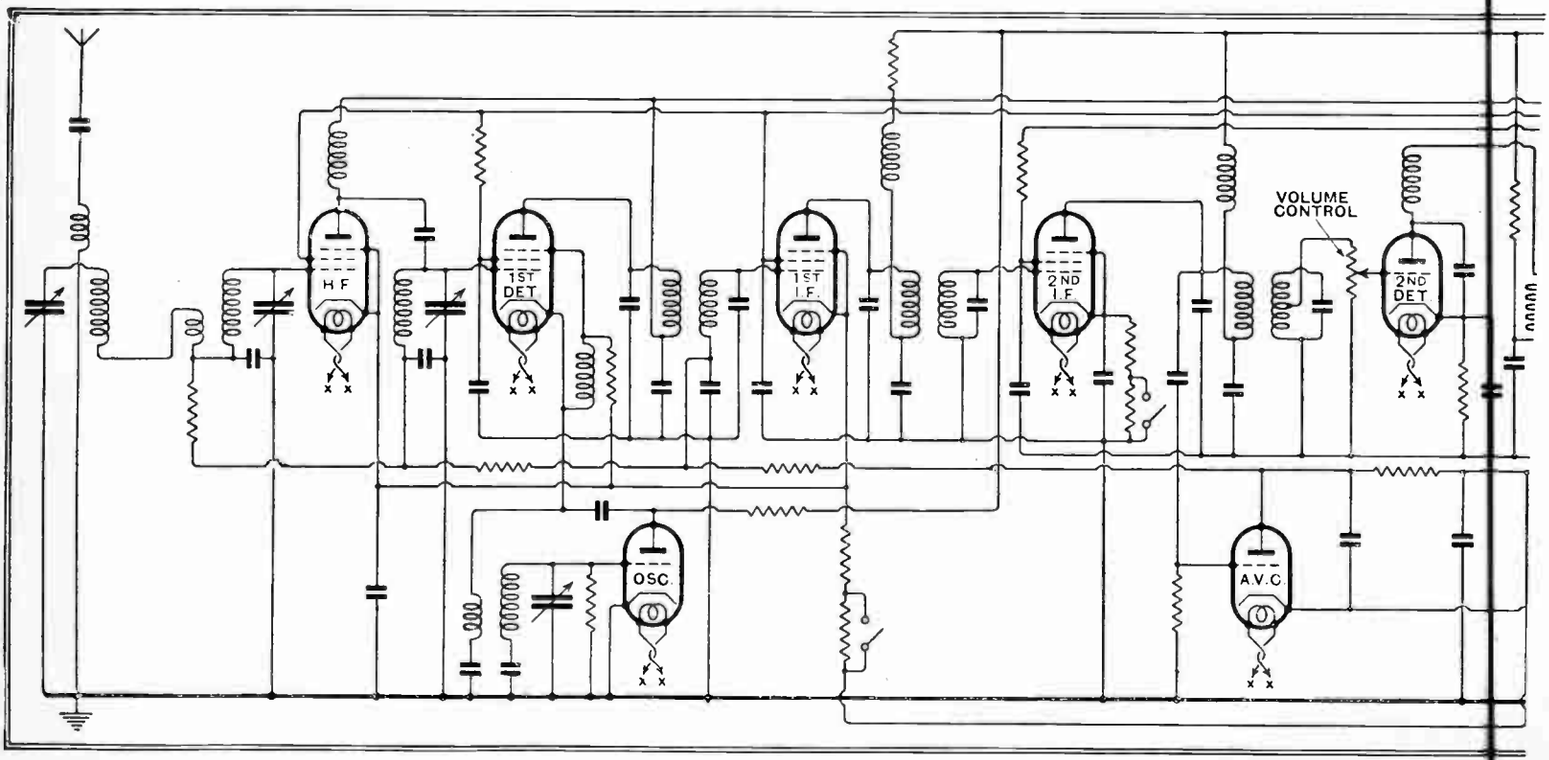
Two I.F. stages are employed with three pairs of coupled coils for the intervalve couplings; there are thus six tuned I.F. circuits forming three band-pass filters. The second I.F. valve has its bias determined only by the drop across a resistance in its cathode lead, but the first I.F. stage, in common with the H.F. and first detector valves, is biased from the automatic volume control valve. The fixed initial bias for these stages is obtained through a resistance in the cathode circuit, and the local-distance switch operates by increasing the value of this resistance and also that of the second I.F. biasing resistance.

Automatic Volume Control Circuit

The automatic volume control functions in the usual manner. A triode acts as an anode bend rectifier, taking its input energy from the primary of the last I.F. transformer, and the increase in current which naturally results is made to develop a voltage across a resistance included in its anode circuit. This voltage is fed back as bias to the controlled valves. The change of anode current of these valves is made to control the neon tuning indicator.

The second detector is also of the anode bend type, but is self-biased so that it can handle a large input. It is fed from the secondary of the last I.F. transformer through the manual volume control potentiometer—a most unusual arrangement. As a result, although A.V.C. is employed, the volume control is still operative in the pre-detector circuits, and the use of a purely L.F. control is avoided.

Transformer coupling to the push-pull output stage, in which

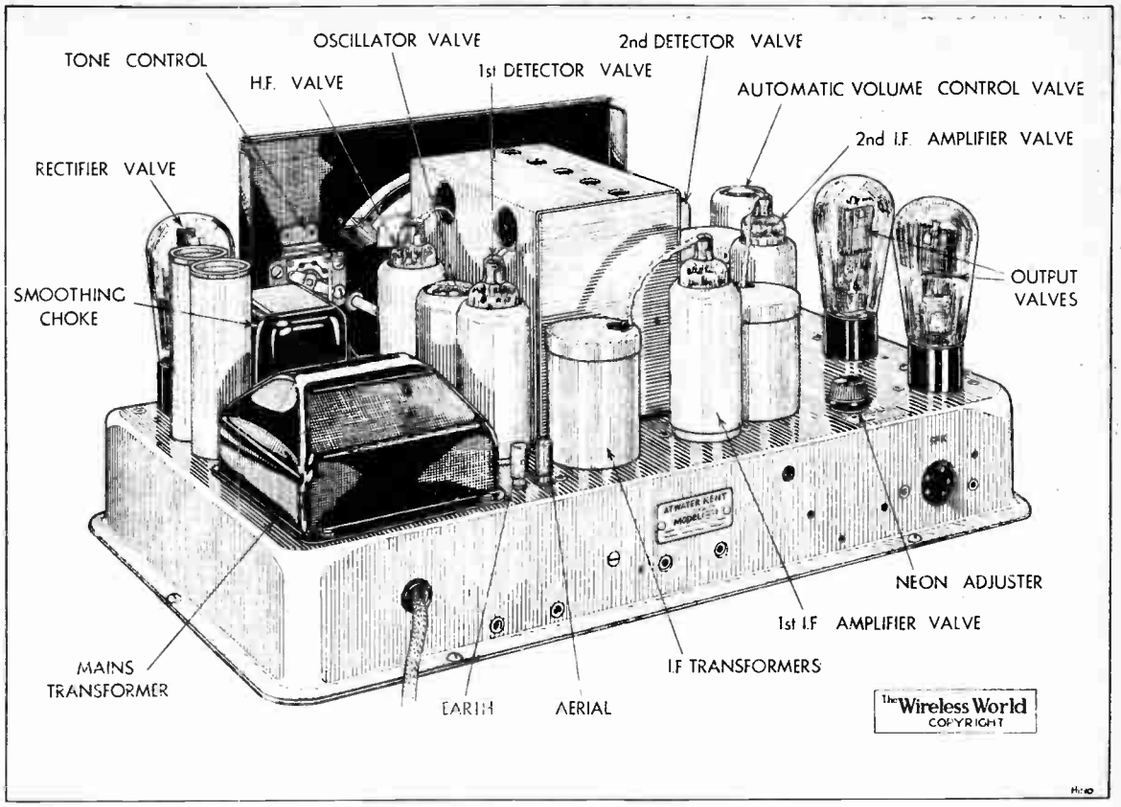


Simplifi d circuit diagram with waveband switching omitted. Tuning is facilitated by the use of a neon indicator and special interest attacl

yne MODEL 480

pentodes are fitted, is used, and the tone control consists of a four-position switch which permits different capacity condensers to be connected at will across the secondary of this component. The output to the loud speaker is, naturally, through a transformer, and the usual pentode compensating circuits are fitted to the primary. The speaker field is energised from the smoothing circuit, but is not relied upon entirely to ensure hum-free operation, for a choke is also included.

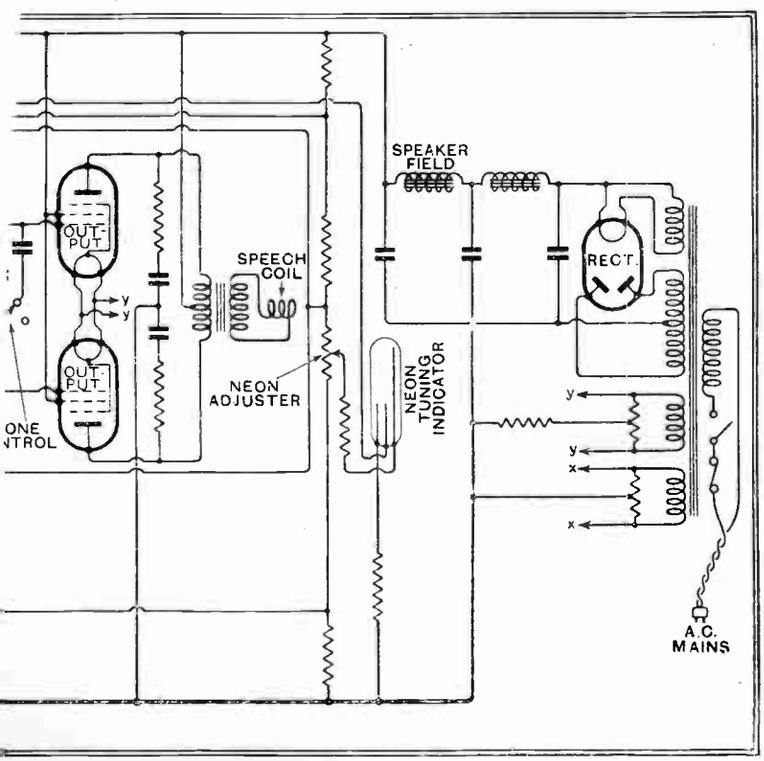
On the three short wave ranges some circuit modifications are introduced, and the chief of these is the alteration of the aerial tuning system to a single tuned circuit instead of a band-pass filter. The H.F. inter-valve coupling remains essentially the same as on the medium waveband, only the values of components being changed, and the oscillator also suffers little alteration. In spite of this, however, the switching is fairly complicated, since not only must the coil connections be changed for each range, but also the padding condensers for the maintenance of accurate ganging.



Rear view of chassis showing clean layout and accessibility of valves.

The receiver has been tested on a full-sized outdoor aerial at about nine miles from Brookmans Park, and, even at this short distance from the locals, not a single whistle was evident on the medium waveband. Such complete absence of second channel and kindred forms of interference is most unusual, and it is not to be accounted for only by the inclusion of three tuned pre-selector circuits, but partly by the fact that the high intermediate frequency of 472.5 kc. is used. This high frequency is adopted primarily with a view to reducing second channel interference on the short wavelengths, where a large degree of pre-selection becomes difficult, but it naturally has the same advantageous result on the medium waveband.

The price to be paid for this complete absence of second channel interference, of course, is slightly reduced adjacent channel selectivity. It should not be thought that this is low, however; on the contrary, it is higher than that of many superheterodynes using a much lower intermediate frequency. Throughout the medium waveband, stations separated by the regulation 9 kc. can easily be separated, except perhaps in the case of those immediately adjacent in wavelength to the locals. The sensitivity is of a very high order, and it will be a rare event, even with a poor aerial, for the set to be working all out. The automatic volume control functions admirably. Although it is a very useful feature on the medium waveband, it is on the short wavelengths that its desirability is most felt, for it greatly counteracts the variations of volume due to the prevalent fading.



ıe manual volume control in the second detector circuit.

Reception of American Stations

On these latter ranges the performance reaches a high standard, and during the tests no difficulty was experienced in tuning in America during the early hours of the evening. The dial is calibrated in megacycles for these ranges, thus greatly simplifying searching and station identification. No trace of cross-modulation or whistle due to the locals was evident on any range.

Background hiss is commendably low, and on any station strong enough for its programme to be of entertainment value under average atmospheric conditions, hiss is inaudible. Mains hum also is absent. The quality of reproduction reaches a high standard, and it is unusually brilliant with the tone control set to give full treble. The maximum volume obtainable from the push-pull pentodes is sufficient for any normal purposes, and during the tests the volume was uncomfortably loud long before the maximum setting of the control was reached. The range of control afforded by the potentiometer, however, is ample, and it is readily possible to reduce the strongest station to silence.

High electrical efficiency is of little use if the mechanical details are poorly conceived, however, for breakdowns then become a probability. It is good to see, therefore, that the same care has been bestowed upon the mechanical design as upon the electrical. The chassis is very rigid, and the valves are mounted in accessible positions; the switchgear is exceptionally robust and appears likely to function indefinitely without trouble. To sum up, the performance of this superheterodyne is deserving of the highest of praise.

No Names

ALL sorts of suggestions continue to appear in the daily Press with regard to the best method of suppressing wireless pirates. The most futile of all—and it is constantly cropping up—is that a wireless dealer should be compelled to report to the proper authorities the name and address of every customer to whom he sells even the smallest component part of a wireless set, including a tin of furniture polish to renovate the cabinet.

Inspectors in plain clothes.

Surely in these hard times no dealer would be fool enough to annoy a customer by such a piece of impertinence, for he would know very well that in actual fact there naturally would be thousands of "pirate" dealers ready to sell to the customer without asking silly questions. Naturally, the pirate dealer would protect himself by entering up in his sales book a fictitious name and address against every item sold, for he would know that in the event of any enquiry he could always blame the customer for the fictitiousness thereof.

Of course, the P.M.G. might check up on the dealer by sending round inspectors in plain clothes to make purchases, but it would only be another wilful waste of public money, for the shrewd dealer would find it quite as easy to penetrate the plain-clothes "disguise" of the inspector as the grocer does that of the weights and measures man.

Human Dielectrics

I HAVE had to complain before of the gullibility of certain journalists in matters scientific. I thought that the tale of the model electric train drawing power from the human body was bad enough, but the latest has it beaten to a frazzle. According to a well-known newspaper in the north, the directors of a large firm up there have "successfully called in radio science to aid them in the solution of a social problem."

It appears that the firm was somewhat perturbed by the irregular hours kept by the upper ten of their staff, and desired some record of the time of their arrival. The directors, however, feared to offend them by suggesting that they do anything so vulgar as punch a clock like the common herd. Hence the invocation of radio.

UNBIASED by FREE GRID

The solution was to hide a metal plate behind each of the doorposts through which the "sensitive" ones passed into the building. These plates formed the two halves of a fixed condenser connected to a local oscillator. Anybody passing through the doorposts would, of course, momentarily form a solid dielectric, and so cause a change in the frequency of the oscillator, since, of course, the door condenser was part of the oscillator tuning system.

Upstairs was a radio receiver accurately tuned to the oscillator, so that when the latter was slightly detuned by a person passing through the door the strength of carrier picked up by the receiver would be decreased, and there would be a corresponding movement of the milliammeter in the detector plate circuit.

Not a difficult matter.

The real piece of genius, however, was the realisation of the fact that the chances are ten million to one against any two persons having identical dielectric properties, and that, in consequence, the change of detector anode current in the receiver upstairs would be different for every person.

Actually, a mirror galvanometer is used in place of the ordinary milliammeter, and the spot of light swings across a strip of cinema film, thus forming a streak, the length of which enables the person entering the door to be identified. (The whole of the upper ten had their normal galvo deflection secretly measured in the first instance.)

Of course, suitable apparatus was employed to mark the time against each streak on the film, and to move the film on another notch after each streak had been recorded. Such elementary points are, however, beneath our consideration.

I have already indicated my disbelief in this very improbable story, but, in case it *should* prove to be true, I have been thinking out ways and means whereby it could be circumvented. It should not, I think, be a difficult matter.

Atmosphere

THE other day I was permitted a glimpse of the various talks studios in Broadcasting House. I was especially interested in the one which is rigged up

For the Children's Hour.

as a fake library to provide "atmosphere" for the benefit of deans, dons, and other denizens of the cloistered peace of our great seats of learning.

Personally, I thought that the odour of disinfectant was somewhat stronger than the odour of sanctity, but that is beside the point. The criticism which I really wish to make is that it is scarcely in keeping with their policy of neutrality in all things that the B.B.C. should attempt to create a familiar environment for one class of broadcasting alone.

Why should not Henry Hall and his fellow jazzmen be provided with a studio replete with the sights and smells of a West African swamp? Suitable atmosphere would suggest itself for the children's hour, and there is equal justification for the provision of the rollicking motion of an old-time windjammer for the benefit of sea shanty singers.

While on the subject of sea shanties, may I ask why we are always fobbed off with the emasculated, ultra-delicate, milk-and-water drawing-room versions of these fine old sea ditties? Must we never hear the real he-man, red-blooded versions which I remember first listening to more years ago than I care to remember, it being my fate to be born in one of these fine old ships?

Possibly, indeed, it *is* the lack of the necessary atmosphere which causes these songs to sound so "refained." Given the right atmosphere and a party of real old shellbacks, these grand old songs could be "got across" in a manner which would vastly increase the popularity of the B.B.C. and put a sharp, upward swoop in the curve of the P.M.G.'s licence figures.

HINTS and TIPS

PRACTICAL AIDS TO BETTER RECEPTION

USERS of direct-current mains suffer from certain limitations when the question arises of fitting automatic volume control. Many methods necessitate a higher anode voltage than is customarily available from such a source of supply.

A.V.C. for D.C. Sets

If the expedient of using batteries, either entirely or as a supplement to the mains voltage, for the control valve is to be avoided, a system involving the use of a diode or Westector must be adopted.

IT often happens, when putting an automatic volume control system into operation, that it is found desirable to apply rather less than the maximum available amount of control to one or more of the valves. For instance, in a "2-H.F." set it might be advisable to apply full control to the first stage, but the second H.F. valve would be made to work better by feeding back to its grid a considerably lower negative voltage.

Double-control A.V.C.

Again, in a superheterodyne where an ordinary screen-grid valve (not variable-mu) is used as an anode bend first detector, a very small percentage only of the total available bias voltage may with advantage be applied.

It so happens that it is particularly easy to differentiate with regard to the extent of control when the A.V.C. Unit (March 31st) is employed. Instead of employing a fixed A.V.C. anode resistor across which the controlling voltage is developed, a potentiometer may be substituted in the manner indicated in Fig. 1. This potentiometer should have the same value (0.25 megohm) as that specified for the original fixed anode resistor.

As shown in the diagram, maximum bias is taken off for the valve which requires it from the most negative end of the potentiometer, as in the original scheme. Bias for the valve requiring something less than the maximum is obtained from the slider connection, which may be set experimentally to the position found to give best control. This extra control point may be joined to terminal No. 5 of the connector strip, which was originally unused.

Although single bias cells are shown in each A.V.C. voltage output, it should be pointed out that these will not be needed in a mains set where the controlled valves normally receive a standing bias developed across resistors in their cathode circuits.

THE possibilities of obtaining really free bias by the simple expedient of inserting the loud speaker field winding in the negative output lead from the rectifier, rather than in its more usual position in the positive lead, have been discussed from different aspects in these pages. It would, perhaps, be as well to emphasise the fact that a bias system operating in this manner is not so fully self-compensating as the usual "cathode resistor" method, and there is, therefore, rather more need to take care that the output valve is never seriously under-biased, or, worse still, operated without any negative bias at all.

Bias Voltage Distribution

This latter possibility is avoided if one realises how the volts are distributed in the circuit. As a rule, the required amount of negative bias is picked up from a potentiometer of 100,000 ohms or so, shunted across the speaker field, as shown in Fig. 2. The rule to remember here is that the slider of this potentiometer must never be allowed to approach too closely to the end of the resistance element marked "zero bias." This end is that which is always connected to the earth line of the receiver.

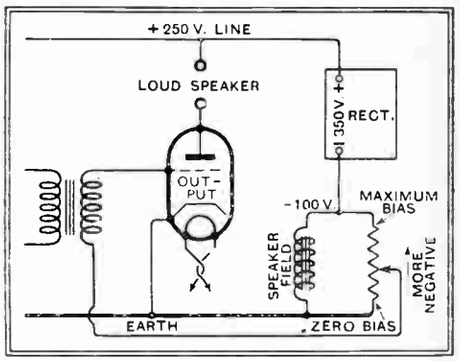


Fig. 2.—Distribution of voltages in a typical circuit where the speaker field is inserted in the H.T. negative lead. Voltages marked are with respect to the earth line.

The diagram has been prepared on the assumption that the rectifier on normal load gives an output of 350 volts, and that 100 volts is dissipated in the speaker field.

Taking these figures, and assuming that a bias of 25 volts is required for the output valve, the correct position for the slider would be at such a point that one-quarter of the total resistance is included between its point of contact and the point marked "zero bias."

IT sometimes happens that one wishes to find out what is happening in the anode circuit of a particular valve, but no milliammeter of a suitable current range is available. For example, those who purchased 0-2 milliamp. meters for insertion in their detector anode circuits in the days when currents were always low will very probably have now changed over to power grid detection, and so this milliammeter will be apparently useless. When it is necessary to obtain only comparative readings and not absolute values of current, a milliammeter of the type in question may be modified quite satisfactorily by fitting a low-resistance shunt.

Shunting a Milliammeter

The exact value of this shunt cannot be given without a knowledge of the internal resistance of the meter, etc., but it can be arrived at very simply by the method of trial and error.

Before switching on the receiver, the meter is wired in circuit, and across it is connected a filament rheostat of some 15 or 20 ohms, set at minimum resistance. After switching on the receiver, the resistance of the shunt is gradually increased until a sufficient deflection of the meter needle is obtained.

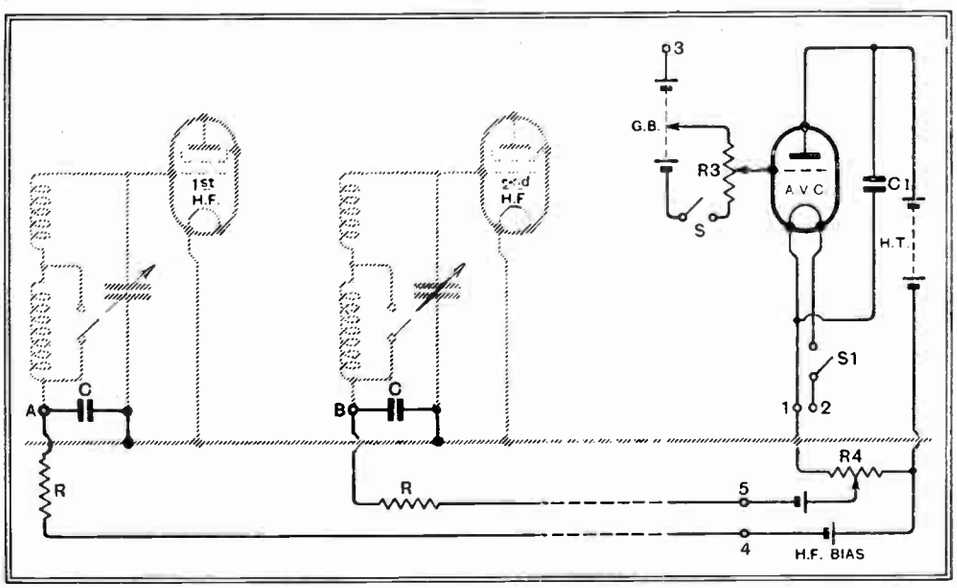
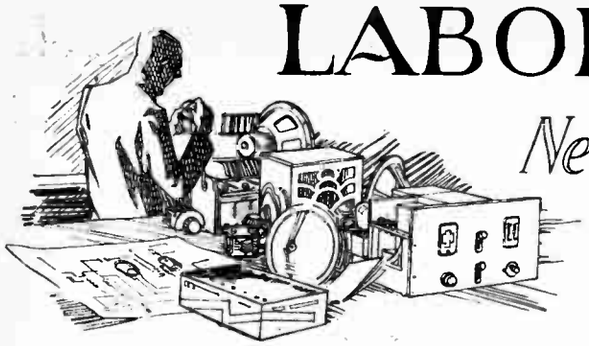


Fig. 1.—A method of applying partial control to one of the valves of a receiver to which A.V.C. has been added. Points A and B were originally joined to sources of fixed or manually controlled bias: R and C are decoupling resistances and condensers.

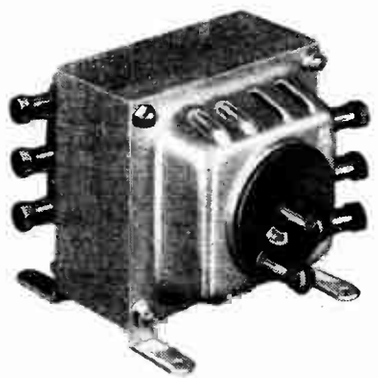
LABORATORY TESTS

New Radio Products Reviewed



WEARITE MAINS TRANSFORMERS

THE mains transformers made by Wright and Weaire, Ltd., 740, High Road, Tottenham, London, N.17, are available in three sizes and classified as types A, B and C. Type A models are for use with Class A rectifying valves, but this series includes also a number of models for Westinghouse rectifiers. Types B and C have been designed for the rectifying valves designated as Class B and Class C. Tests were made with a B type transformer wound to give 350-0-350 volts at 120 mA. for the H.T. supply; there are two L.T. windings,



Wearite type B mains transformer embodying special input voltage selector

the one rated at 4 volts 2.5 amps. for the rectifier filament, and the other 4 volts at 4 amps. for the heaters of A.C. valves.

The rectified, or D.C. output, measured across the 4-mfd. reservoir condenser at various current loads and using a Mazda UU120/350 valve, was as follows:—

Current in mA.	Volts D.C.	Current in mA.	Volts D.C.
10	460	70	370
20	437	80	360
30	418	90	350
40	404	100	342
50	390	110	330
60	378	120	320

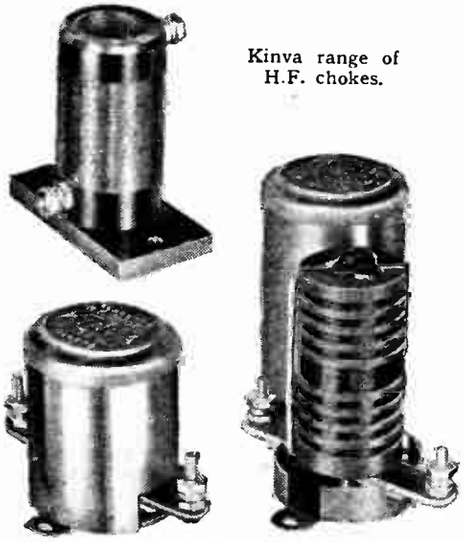
Regulation of the H.T. secondary winding is very good, so, also, is that of the two L.T. windings for when fully loaded the A.C. voltage of both L.T. windings remained well within the tolerances for A.C. valves. For example, with 30 mA. flowing in the H.T. circuit the rectifier filament and the four A.C. valves were operated at 4.17 volts, whilst increasing the H.T. load to 120 mA. brought both L.T. supplies down to 3.96 volts. During these tests the transformer remained quite cool and showed not the slightest trace of overheating. Types A and B are fitted with a special input voltage selector which dispenses with the need for a row of terminals, and, furthermore, provision is made for close adjustment of the input to suit various supply voltages. The primary is tapped at 10-volt intervals from 200 to 250 volts at 50 cycles.

The price of the type A transformer varies from 17s. 6d. to 25s. according to the style of rectifier it is designed to work with, whilst the type B, such as the one tested, costs 27s. 6d. The C model is priced at 37s. 6d.

KINVA H.F. CHOKES

POSTLETHWAITE BROS., Church Hill, Kinver, Stourbridge, Worcs, who were among the first, if not the first, firms in this country to market a screened H.F. choke, have added two new models to their range. One is an unscreened short-wave choke wound on a one-inch ebonite former and having an effective wave-range of from 10 to 80 metres. The winding is protected to avoid possible damage to the wire, and the price is 2s. 3d.

The other new model is described as the Kinva Major Screened H.F. Choke, and has been designed especially for use in superheterodyne circuits. It has an inductance of 280,000 microhenrys and the low self-capacity of 8 m-mfds., and the price is 5s. 6d. This model was found to be perfectly satisfactory, not only for use in superhets., but also in straight circuits over the normal broadcast wavebands.



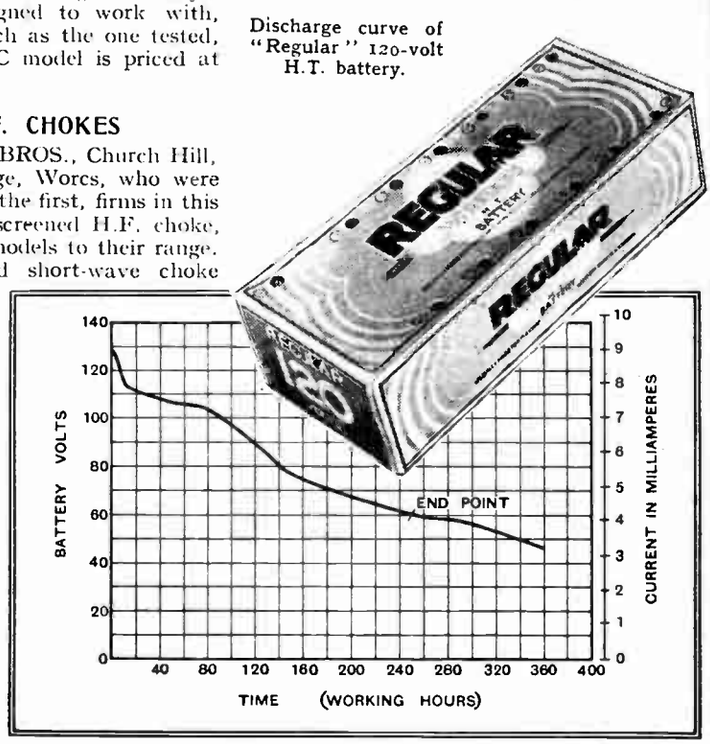
Kinva range of H.F. chokes.

The standard model is retained without change as it is suitable for use over a range of wavelengths extending from 50 to 2,000 metres. Its inductance is 102,000 microhenrys, and the price is 2s. 9d.

"REGULAR" 120-VOLT H.T. BATTERY

THE "Regular" dry cell H.T. battery of 120 volts nominal value is made for and marketed by Polchars, Ltd., 20, Bridge Street, Bristol, 1. It is tapped at convenient intervals, the first being at 25 volts,

Discharge curve of "Regular" 120-volt H.T. battery.



and thereafter at 9-volt intervals up to 120 volts. On a life test the battery gave a working time of 250 hours, the end point being taken when the voltage had fallen to half the nominal value. During the early stages it maintained its voltage at a satisfactorily high level, remaining over the 100-volt mark for the first 90 hours.

The battery was not discharged continuously, but in periods of four hours, with similar time intervals for recuperation, on the curve these rest periods are omitted and only the actual working hours shown. On the whole the "Regular" H.T. battery acquitted itself very well indeed, for the test is a severe one and in normal use, when the battery is active for about four hours only per day, it will give considerably longer service. The most economical discharge rate is between 7 and 8 milliamps. The price is 7s. 6d. for a 120-volt unit.

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Catalogues Received

A. C. Cossor, Ltd., Highbury Grove, London, N.5.—Illustrated folder describing the new short-wave superheterodyne receivers. The wave range is 13.5 to 70 metres and 200 to 550 metres; one model is battery operated, the other for A.C. mains. They are for overseas use only.

Ward and Goldstone, Ltd., Pendleton, Manchester—48-page illustrated catalogue dealing with the full and comprehensive range of "Goltone" products and specialities.

Broadcast Brevities

By Our Special Correspondent

A Stuntless Summer?

WHERE are the stunts of yesteryear? The "outside broadcasts" department of the B.B.C. still has time to show its daring before all the summer programmes are planned, but at the moment the prospects are, to put it mildly, rather grey.

Five years ago the B.B.C. was straining every nerve to introduce novelties into the programmes, and although we grumbled then, as now, we could at least give the Corporation credit for trying to keep us glued to our loud speakers.

Nothing New

Nowadays there are no novelties. Is it because all the good ideas have been used up, or can it be that the B.B.C. has lost that first fine frenzy and is suffering from a dried up imagination? Such troubles afflict individuals, so why not a Corporation, especially a Corporation which has been steadily drilled to act as a disciplined unit?

Money for Ideas

The Corporation has enough money to offer financial reward to anyone who can provide good programme ideas. Why not open an "Ideas Bureau" to which any member of the public could contribute?

No one would contribute from sheer love of the B.B.C., but monetary inducements will work wonders. *Vide* newspaper competitions.

Talking About Lucerne

TAXIS are disgorging B.B.C. officials at St. Martins-le-Grand these days. Mr. Ashbridge and his party are holding earnest conversations with the Post Office engineers, with whom they will shortly make a trip to Lucerne to engage in the *Conference that is to end Conferences.*

Speculation

Lucerne should certainly go down in broadcasting history as the birthplace of the most ambitious wave plan yet formulated, but we have yet to see whether the Conference will, in actual fact, produce such triumphal results as were achieved at Prague in 1929.

The curtain rises on Monday, May 15th. No one knows when it will descend.

Cardiff v. Bristol

THE West Regional station will share the distinction with the Scottish of possessing two studios of almost the same importance. While our Welsh friends are staunchly upholding the seniority of the Cardiff headquarters, I see no reason why Bristol should not claim equal honours, for it will serve a larger area, *i.e.*, the West of England, than that to which Cardiff is ostensibly dedicated.

Rivalry

Anyway, some more or less good-natured rivalry is bound to develop, nor is it likely to be assuaged by Welsh claims that one of the Western transmitters should be devoted exclusively to programmes for the Principality. The same spirit prevails up north, for it will be recalled that Edinburgh and Glasgow have always been at loggerheads in broadcasting affairs; there is still some heart-burning to-day as to which studio shall monopolise the greater amount of time on the Scottish ether.

Command Performance

AND now we are to have the B.B.C.'s own "Command Variety Performance"! One cannot but admire the determination of the B.B.C. to be independent at all costs, but unless His Majesty gives explicit instructions for the holding of such an event, I fail to see how the B.B.C. can ordain a "command" show on its own account.

In the Autumn

Strictly speaking, the Command Variety Performances of the last few years have not deserved that title, for I believe that His Majesty has actually "commanded" only one performance of the kind, and that was back in the war years.

The B.B.C.'s special variety performance will, without doubt, be broadcast from the Concert Hall in the early autumn, but how the artistes will be selected and who will select them, it is not for mere mortal to say.

Why not let the Director General make a choice?

FORCEPS HOUR. The day of the stunt is not dead in America. Here is Dr. O'Connell giving a dental talk and demonstration at the WCFL, Chicago, microphone.

A Departing Chief

MR. CLEGHORN THOMSON, who has resigned his position as the B.B.C.'s Scottish Regional Director, paid a tribute the other day to the generous treatment accorded him by the Corporation.

This generosity of the B.B.C. towards those who leave its ranks is becoming a by-word; indeed, I hear that certain people would be prepared to join the staff for a few months only in order to secure the lifelong competence which would accompany their resignation.

"Trelawny of the Wells"

REAL Victorian melodrama will be offered us during the first week in June, when Sir Arthur Pinero's "Trelawny of the Wells" will be broadcast.

It is interesting to note that the part of Rose Trelawny was originally taken by Miss Irene Vanbrugh, who is one of the subjects of Mr. Agate's series on "Stars in Their Courses."

Celebrations at Stratford

THE Shakespeare birthday celebrations at Stratford-on-Avon on April 24th will furnish a relay to National listeners. Speeches by Sir Philip Ben Greet, Miss Lilian Baylis and the Mayor will be heard.

Rapid Drop

SIR CHARLES CARPENDALE, Controller of the B.B.C., is no mean ski-er himself, and I can imagine what feelings of friendly rivalry must have been his at the news of Major Gladstone Murray's triumph in Canada. Major Murray has improved the shining leisure hour over there by descending the Mount Baldy run at St. Marguerite, Quebec, in the record time of 2 min. 55 sec.

He must have been training for this rapid drop in those Broadcasting House lifts, which are probably the swiftest in London.

THE UBIQUITOUS LOUD SPEAKER. This photograph shows a typical scene in the streets of Berlin, where the Nazi "storm troops" rely largely on public address systems for securing big audiences. The van is one of the new Telefunken mobile receiver and amplifier models.

READERS' PROBLEMS

THESE columns are reserved for the publication of matter of general interest arising out of problems submitted by our readers. Readers requiring an individual reply to their technical questions by post are referred to "The Wireless World" Information Bureau, of which brief particulars, with the fee charged, are to be found at the foot of this page.

Explaining Background Noise

THE carrier wave of a broadcasting station acts as a vehicle for the transmission of speech and music; unfortunately, it also "gives a lift" to interfering noise-producing voltages through the circuits of a receiver. This, we think, will serve as an explanation to a correspondent who wonders why the background noises produced by his set are increased by tuning the circuits to an incoming carrier wave.

This effect is by no means abnormal; it indicates that most of the interfering voltages happen to be of a low-frequency nature, which, in the absence of a carrier wave, are not passed on to any extent by the tuned H.F. or I.F. couplings of the receiver. A carrier wave, on the other hand, may be modulated locally by such interference, which is then passed through the intervalve coupling, and so to the detector and output valves.

Long-wave Reaction

WHEN reaction works "according to plan" on the medium wavebands, but fails to produce a steady increase in signal strength on long waves, it is always to be suspected that spurious oscillations are taking place. The symptoms described by a correspondent would indicate that his receiver is suffering from this trouble; reaction is practically useless on the long-wave side for increasing signal strength, but it is possible to produce self-oscillation. However, when the set is in an oscillatory condition, heterodyne whistles are not heard.

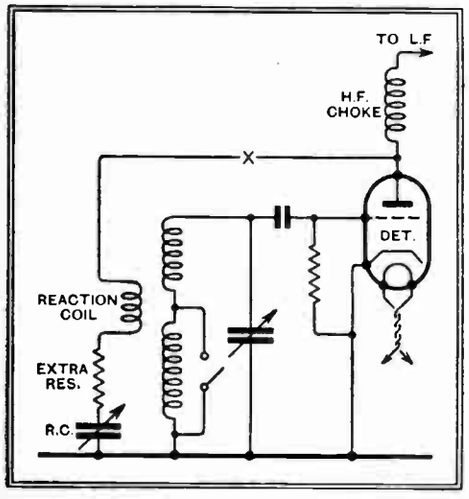

Fig. 1.—An "anti-parasitic" device; the extra resistance, in series with the reaction coil, prevents a form of spurious oscillation which sometimes occurs at a frequency other than that to which the receiver circuits are tuned.

We advise in this case the insertion of a non-inductive resistance of between 500 and 1,000 ohms in series with the reaction circuit, in the manner indicated in Fig. 1. The position of this resistance is seldom of much importance, and if it is more convenient to do so, it might be placed at the point X instead of that shown.

Warming Up

A READER, who is otherwise quite satisfied with the performance of his A.C. mains set, is apparently perturbed by the fact that a loud hum is heard shortly after switching on the receiver. After half a minute or so, this hum disappears, and while the receiver is in normal operation, the background is exceptionally quiet. We are asked to say whether this hum indicates any fault.

This effect is by no means unusual, and we do not think that our querist need be perturbed. Until its heater has reached a normal working temperature, the internal A.C. resistance of the detector valve is extremely high, and, as a result, the primary circuit of the L.F. transformer is practically undamped; in this condition it is particularly likely to pick up stray hum voltages.

The A.V.C. Unit

SEVERAL questions with regard to the A.V.C. Unit (March 31st) refer to the H.T. and grid bias batteries required for this device. It is asked whether the sources of voltage which normally feed the receiver could be used for the control unit.

Generally speaking, this is impossible, as it is necessary that the batteries should not be directly connected to the receiver circuits, except in the manner shown. Fortunately, the current drawn from the batteries of the unit is almost negligible, and so they will have a long life; further, the smallest and least expensive types may be employed.

There is no theoretical objection to altering the unit for "all-mains" operation, but it is hardly economical to do so. Entirely separate sources of G.B. and H.T. would be needed; critical voltage adjustment of the former must be provided, but the precise value of H.T. is unimportant.

It should also be made clear that the system described does not work with diode or anode bend detectors.

Insufficient Resistance

ANOTHER query with regard to the A.V.C. Unit relates to the conversion of a receiver which, as it stands, is not suitable for operation with this device. As stated in the original article, voltage changes for actuating the control valve are only obtainable when a relatively high value of resistance is included in the detector anode circuit. This condition is not satisfied when the detector is linked to the succeeding valve by means of an ordinary transformer, unless decoupling is fitted.

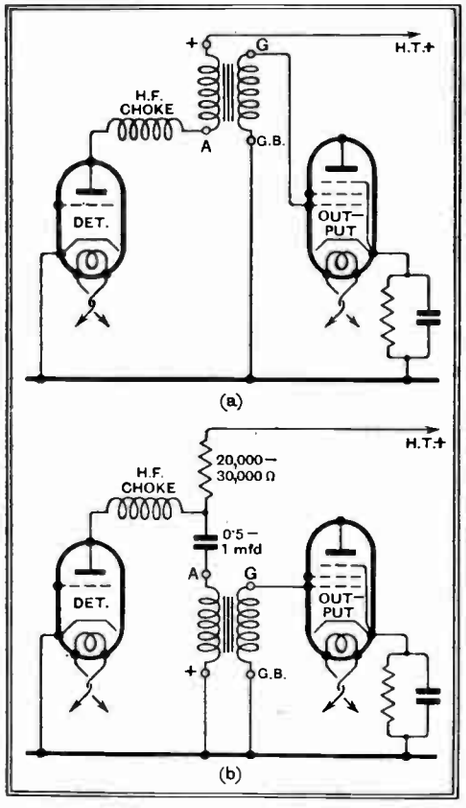

Fig. 2.—A receiver with simple transformer L.F. coupling, as in diagram (a), may almost invariably be converted to the parallel-feed system without impairing results.

A reader proposes to overcome this difficulty by inserting, in series with the transformer primary, a resistance of 20,000 ohms. To do this is bad practice, as a fair proportion of the available signal voltage would be wasted in this resistance, and sensitivity would be reduced. Even if a by-pass condenser were added, the scheme would still be open to objection, as very probably detector anode voltage would then be insufficient.

It is recommended, in cases like this, that the parallel-feed system of coupling should be adopted. Almost every transformer, even though not designed for this method of coupling, will work well when operated in this manner; no falling off in performance is to be anticipated, and very often there will be an actual improvement.

For the benefit of the reader who raises this point, and also of others, a simplified diagram is given in Fig. 2 to show the alterations that will be necessary. Extra components needed are a feed resistance and a coupling condenser of roughly the values indicated in Fig. 2 (b). The connections of the transformer should be noted.

The Wireless World INFORMATION BUREAU

THE service is intended primarily for readers meeting with difficulties in the construction, adjustment, operation, or maintenance of wireless receivers described in *The Wireless World*, or those of commercial design which from time to time are reviewed in the pages of *The Wireless World*. Every endeavour will be made to deal with queries on all wireless matters, provided that they are of such a nature that they can be dealt with satisfactorily in a letter.

Communications should be addressed to *The Wireless World* Information Bureau, Dorset House, Stamford Street, London, S.E.1, and must be accompanied by a remittance of 5s. to cover the cost of the service. The enquirer's name and address should be written in block letters at the top of all communications.

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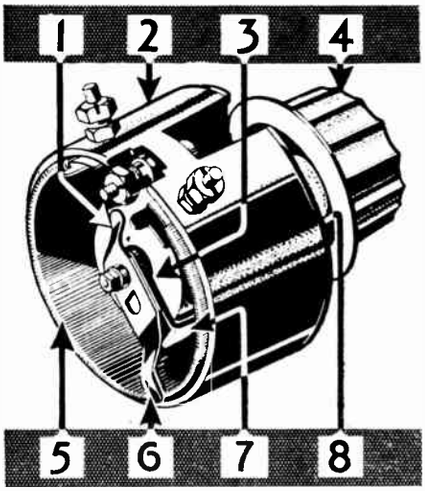

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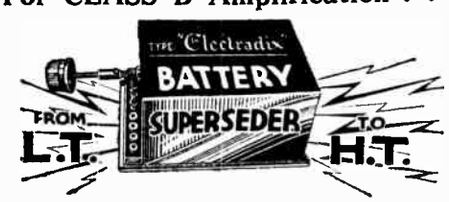

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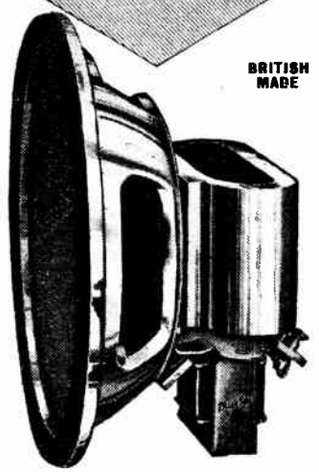

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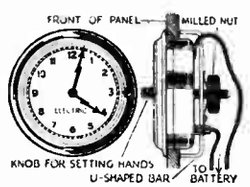

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H.T. Eliminator, 200v. 40 m.a., 4 tappings and grid bias up to 20, Philips 3009, any trial.—34, Grove End Rd., N.W.8. [2446

PHILIPS 13.70 Charger, with spare valve, unused, will charge 1 to 30 cells at 6 amps., also portable Philips 1101, 6 cells, at 2 amps.; seen and tried by appointment.—34, Grove End Rd., N.W.8. Primrose 5283. [2447

TRICKLE Chargers, 2-6v., with Westinghouse rectifiers, complete, ½ amp. 11/9, 1¼ amp 19/11; seven days' trial; postage 9d.

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CHAL-ELECTRIC Offers Brand New Set Manufacturer's Surplus (last few): Rola moving coil speakers, P.6 7½in. cones, following voltages: 6 volts, 5½ ohms, 2,000 ohms, 2,500 ohms, 4,700 ohms, 6,500 ohms, listed 35/-, at 16/- each; F.7, 9in. cones, all voltages, listed 45/6, at 25/- each; permanent magnets, F.6.P.M., listed 49/6, at 28/- each; F.7P.M., listed 60/-, at 32/- each; please state whether power or Pentode transformer required. Public address S.G. Brown A.C. 100-250 volts, 13½in. diaphragm, complete with rectifier, transformer, at 45/- cash with order; carriage paid or c.o.d.—Chal-Electric, 6, Conduit St., London, W.1. [2421

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4,000 Valves are Always in Stock for Immediate Despatch; prompt attention, for cash or c.o.d.

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Valves.—Contd.

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VARIABLE Condensers, complete with screen covers, trimmers, disc drive, escutcheon plate, knob, etc., 1933 Polar Star, 3-gang, listed 30/6, at 16/-; J.B. Nu-Gang, as above, 3 Gang at 14/6; 2 Gang, as above, at 10/-; cash with order; carriage paid. or c.o.d.—Chal-Electric, 6 Conduit St., London, W.1. [2422

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Includes all FIRST SPECIFIED Components for Set and 2.5 Watt Power Chassis with Valves. Cash or C.O.D. Carriage Paid. **£26-18-0,** *or deposit* **£4-18-0,** *and* 11 *monthly payments of* **£2-4-0.**

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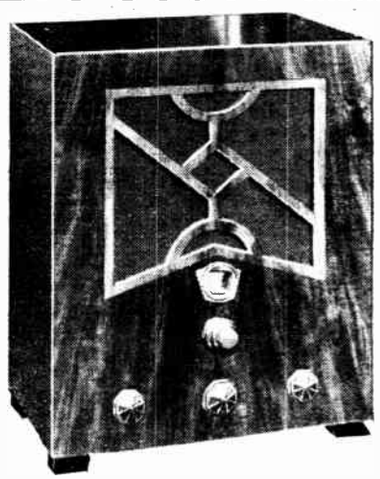

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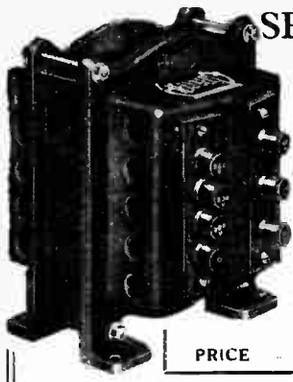
LIST of Others from Trevor Pepper, 48, Wakegreen Rd., Birmingham. [2473



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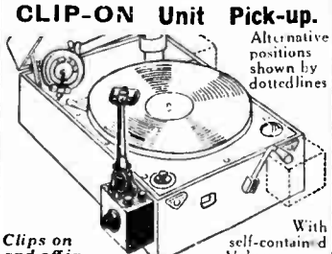

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WIRE-WOUND Potentiometers, 15,000 ohms, 1/6; Centralab Potentiometer volume controls, 50,000 ohms, 2/-; Colvern-tats, logarithmically wound potentiometers, 6,000 ohms, 1/9.

PHILIPS 323 Valves for L.T. Charging, 5/6; 329 Barradex lamp, 2/-.

ACCUMULATOR Chargers, 200/250 volts A.C., all incorporating Westinghouse rectifiers: 2, 4, and 6 volts at half amp., 17/6; 2, 4, and 6 volts at 1 amp., 22/6; 12 volts at 1 amp., 27/6; 12 volts at 1.5 amps., 30/-; 6 volts at 2 amps., 35/-; 6 volts at 3 amps., 39/6; 12 volts at 3 amps., 52/6; 3 separate 12-volt 1 amp. circuits, 75/-.

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PREMIER Mains Transformers, output 250-0-250 volts at 60 milliamps, 4 volts 1 amp, 4 volts 2 amps., and 4 volts 3-4 amps. (all c.t.), with screened primary, 15/-.

PREMIER Mains Transformers, output 400-0-400 volts at 100 milliamps, 4 volt 4 amp., and 4 volt 2.5 amp.; 15/-.

H.T.8 Transformers, with 4 volts 3.5 amps. L.T. (c.t.), with screened primary, 15/-; with Westinghouse rectifier, 25/-.

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H.T.10 Transformers, with 4 volts 4 amp. L.T., 15/-; with rectifier, 27/- (output 200 volts at 100 milliamps).

PREMIER Mains Transformers, 12 volts 1 amp., 7/6; 9 volts 1 amp., 7/6; 4 volts 4 amps., and 4 volts 2 amps., 8/6; 14 volts 4 amps., 12/6; 4 volts 3 amps., 7/6; 4 volts 5 amps., 8/6; 22 volts 1 amp., 10/-; 6 volts 2 amps., 7/6.

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AMPLION Mains Transformers, input 100/250 volts, output 350-0-350 volts, 120 milliamps., 4 volts 5 amps., 4 volts 2 amps., and 6 volts 1 amp. (all c.t.); 17/6.

AUTO Transformers, 110/200-250 volts or vice versa; 60 watt, 7/9; 100 watt, 10/-; 180 watt, 15/-.

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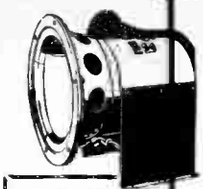

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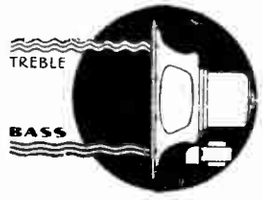

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WEDNESDAY

APRIL THE TWENTY-SIXTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	"Coriolanus," part 1, by Shakespeare.
LONDON REGIONAL	Variety programme.
MIDLAND REGIONAL	Gloucestershire composers, orchestral concert.
WEST REGIONAL	"Medley," a feature programme.
SCOTTISH REGIONAL	Violin and pianoforte recital.
NORTH REGIONAL	Orchestral concert.
BELFAST	Orchestral concert from Stranmillis.

ABROAD

BERLIN (Witzleben)	7 p.m. The Festival of the Guilds (relayed by other German stations).
BERO-MUNSTER	8 p.m. Brahms Festival Concert, from the Cathedral, Basle.
EIFFEL TOWER	8.45 p.m. Acts 2 and 3 of Opera: "Hérodiade," by Massenet (relayed also by **Bordeaux, Lafayette,** and **Lyons la Doua**).
FRANKFURT	9.45 p.m. Schumann, Brahms, and Pfitzner song recital (relayed also from **Stuttgart**).
KONIGSWUS-TERHAUSEN	8.20 p.m. Variety for orchestra—a radio humoresque (relayed from **Hamburg**).
LANGENBERG	8.25 p.m. Opera and operetta concert.
PRAGUE	8.5 p.m. The Czech Philharmonic Orchestra, conducted by O. Jeremias.
REYKJAVIK	11 p.m. Acts 1 and 2 of "Il Trovatore," opera by Verdi.
STOCKHOLM	8 p.m. A German Requiem by Brahms.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Time Signal. **7.31,** Gaelic Talk. **7.45,** German Lesson. **8.0,** Illustrated Talk on Dance Rhythms in Old Music. **8.30,** Baritone Solos by C. G. Hearne. **8.45,** Music by Mme. van Aalst's Instrumental Trio. **9.5,** Mezzo-Soprano Solos by Bridie Moloney. **9.20,** Harp Solos by Treasa Ni Cormaic. **9.40,** Instrumental Trio Concert. **10.0,** Light Music on Gramophone Records. **10.30,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.** Trio Concert: Selection from Tosca (Puccini); Oriental Piece (Delille); Album Leaf (Mascheroni); Minuet from Manon (Massenet); Chanson brève (R. Demaret); Selection from Il Trovatore (Verdi). **8.0,** Dance Music relayed from the Hotel Ritz. **8.30,** (in an interval), Exchange and Probable Relay from the Ayuntamiento. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange and Market Prices. **10.5,** Concert by the Station Orchestra: Pasodoble (Fernandez); Selection from Los pícaros celos (Jiménez); Gavotte and Musette (d'Ambrosio); Serenata (Juel-Frederiksen); Dance of the Tumblers (Rimsky-Korsakov); Overture, The Thieving Magpie (Rossini). **11.0,** Poetry Recital. **11.10,** Violin Recital by Julio Jarque. **11.40,** Concert by the Station Orchestra: Overture, Prinzessin Goldschein (Gust); Suite, Le secret de Myrto (Berardi); Gramophone Records. **12 Midnight** (in an interval), News Bulletin. **1.0 a.m. (Thursday)** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Notes. Tourist Report and Dopolavoro Notes. **8.20,** Giornale Radio and Weather. **8.30,** Time and Announcements. **8.35** (approx.), Concert of Chamber Music. Soloists: Ita Lombardo d'Angelo (Pianoforte) and Enza Motti Messina (Soprano). Ballet Overture (Lincke); Pianoforte Solos: (a) Pastorale (Scarlatti), (b) Le Concou (Daquin); Soprano Solos: (a) Quel rossignol che si soave piagne (Pizzetti), (b) I pastori (Pizzetti); Adagio for Violin and Pianoforte (Zuelli); Soprano Solos (Duparc): (a) L'invitation au voyage, (b) La vie antérieure; Pianoforte Solos: Four Preludes (Chopin); Overture, Silverya (Silvery); Pianoforte Solos (Debussy): (a) Minstrels, (b) The Little Shepherd, (c) Golliwog's Cake Walk; Soprano Solos: Sicilian Songs (Malé): (a) Ninna, nonna, (b) Canto del carcerato, (c) Filastrocca; Gavotte (Bolzoni); Concert Etude (Liszt). In the interval, Talk. **10.50,** Light Music on Gramophone Records. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**3.30 p.m.,** Recital of Folk Songs. **4.0,** Folk Melodies on the Accordion. **4.30,** Gramophone Records of Variety Music. **5.0,** Medical Talk. **6.25,** Time and Programme Announcements. **6.30,** Talk. **7.15,** Violin Recital. Larghetto (Händel); Violin Concerto in A (Mozart). **7.45,** Folk Song Recital. **8.15,** Concert by the Radio Orchestra. Overture, The Barber of Seville (Rossini); Selection from André Chénier (Giordano); Suite, Scènes napolitaines (Massenet). **9.10,** A Play (Il Rossi). **10.0,** News, followed by Cigány Music from the Rudnicanin Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 153.5 kc/s, 1,635 metres; 60 kW.—**2.0 p.m.,** Gramophone Concert of Variety Music, relayed from **Berlin (Witzleben). 2.45,** Programme for Children. **3.30,** Weather and Exchange. **3.45,** Talk on Otto zur Linde, for his Sixtieth Birthday. **4.0,** Talk: German Script. **4.30,** See **Hamburg. 5.10,** Topical Talk. **5.30,** Talk: Obtaining New Land for the Unemployed Emigrants to the Saar District. **6.0,** A Poem. **6.5,** Recital of Music by Georg Vollerthun. **6.35,** Wireless Technical Talk. **6.50,** Weather and Announcements. **7.0,** Transmission for all German stations, relayed from **Berlin (Witzleben). 8.0,** Short-hand Tests for all Systems. **8.20,** See **Hamburg. 9.30,** Talk: The Triumphal Procession of German Labour. **9.50,** Nietzsche Aphorisms. **10.10,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Concert from **Heilsberg. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**7.0 p.m.,** Transmission for all German Stations: The Festival of the Guilds—Play (Louis Angely). **8.5,** Announcements. **8.10,** Folk Songs. **8.40,** Orchestral Music from the Café Corso. **9.30,** Concert by the Radio Orchestra, conducted by Eugen Jochum: Concerto grosso No. 5 in D (Handel); Passacaglia (Ilse Fromm-Michaels), arranged Franz Wohlfahrt. **10.0,** Weather, News, and Sports Notes, followed by Dance Music by the Arno Berger Band, relayed from the Zoo. **12 Midnight** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW. **5.40 p.m.,** Light Music on Gramophone Records. **5.55,** Hungarian Programme: Two Talks, followed by Sonata in G Minor (Debussy), by J. Luzeni (Violin) and Magda Richterova (Pianoforte). **6.55,** News. **7.0,** See **Prague. 7.25,** See **Brno. 7.55** till Close Down, See **Prague. 10.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by **Gleiwitz, 1,184 kc/s, 253 metres.—1.10 p.m.,** Gramophone Concert. **1.45,** Time, Weather, News and Exchange. **2.5,** Gramophone Concert. **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.45,** Reading from Lob der schönen Schlesierin (Klara Kruger). **4.0,** Talk: American Salesmanship. **4.15,** Book Review. **4.30,** Franz Lubich Song Recital by Erika Rokytta (Soprano). **5.0,** Talk: Youth Hostels for Secondary Schools. **5.20,** Agricultural Prices. **5.25,** Radio Report from the Proskau Agricultural College, Upper Silesia. **6.0,** Talk: The Upper Silesian Aviation Exhibition. **6.10,** Bach Concert on Gramophone Records: Ricercare for Six Voices, from the Musikalische Opfer; Prelude and Fugue in D; Aria for Soprano and Three obbligato Flutes from the Augustus Birthday Cantata; Sonata in C Minor for Violin and Harpsichord; Aria from the Suite in D; Toccata and Fugue. **6.50,** News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** See **Berlin (Konigs Wusterhausen). 8.25,** Soprano Recital by Gertrud Pfitzinger: Four Chinese Songs (Birtner); Mädchenlieder (G. Schumann). **8.50,** News. **9.0,** Concert of Light Music by the Station Orchestra, conducted by Franz Marszalek. **10.0,** Time, Weather, News, Sports Notes and Programme Announcements. **10.20,** Talk: The Town of Marienburg and its Festival Plays. **10.40,** Gipsy Music, relayed from **Budapest. 12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW. **6.25 p.m.,** German Transmission: News, Talk on the Brno Broadcasting Station in Komarow and Programme for Workers. **7.0,** See **Prague. 7.10,** Talk. **7.25,** Concert of Schrammel Music. **7.55,** See **Prague. 10.30** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Concert relayed from the Menuline Hall, Antwerp. **1.0 p.m.,** Le Journal Parlé. **1.10,** Acts 2 and 4 of Carmen—Opera (Bizet) on Gramophone Records. **5.0,** Dance Music relayed from the St. Sauveur Palais de Danse. **6.0,** Talk; Free Thought. **6.15,** Gramophone Records: Airs d'Auvergne (Delerons); Ballet égyptien (Luigini). **6.45,** The Haunted House—Sketch (Léon Bonnaud). **7.0,** Gramophone Records: Sérénade (Gounod-Sear); L'Emir d'amour (Khosp); Overture, Iphigénia in Aulis (Glück). **7.45,** Talk: Art and Folk lore in the Bormage. **7.30,** Talk on Hygiene. **8.0,** Orchestral Concert, conducted by Désiré Defauw. Soloist: Jean du Chastain (Pianoforte); Overture, Oberon (Weber); Concerto in E Flat for Pianoforte and Orchestra (Beethoven). **8.45,** The Honeymoon—Sketch (Desiré Grevesse). **9.5,** Concert (contd.): Prelude and Finale from Kaatje (Buffin); Suite, Eros et Psyché (de Malcingrean); Suite flamande (Moereman): Fantasia on a Walloon Melody (Ysaye). **10.0,** Le Journal Parlé. **10.10,** Dance Music relayed from the St. Sauveur Palais de Danse. **11.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**12 Noon,** Concert of Light Music on Gramophone Records. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert conducted by Paul Moreaux, relayed from the Menuline Hall, Antwerp. **5.0,** Concert of Rhapsodies by the Radio Orchestra, conducted by Charles Walpot: Rapsodie dahoméenne (De Boeck); Rhapsody in B (Hartung); Rhapsody No. 11 for Two Pianofortes and Orchestra (Liszt); Slav Rhapsody (Friedemann); Norwegian Rhapsody (Lalo); Rhapsody, España (Chabrier). **6.0,** Gramophone Records: Iberian Dance (Sin); Selection from Marietta (O. Straus). **6.15,** Talk. **6.30,** Quartet in A (Brahms). **7.15,** Talk: Paul Verbruggen. **7.30,** Theatre Review. **8.0,** Concert by the Symphony Orchestra, conducted by A. Neulemans. Soloists: Mme. Gravndorge and Mme. Gorlevet-Leon: Symphony for Orchestra and Organ (Saint-Saëns). **8.30,** De Leer zonder identiteit—Sketch (Brunclair). **9.0,** Concert (contd.): Overture, Events (Cyzendiove); Concerto choregraphique (Poulenc); Songs: Two Arias from A Winter Night's Dream (De Boeck); Waltz (Race). **10.0,** Le Journal Parlé. **10.0,** Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert by the Station Orchestra: Overture Alessandro Stradella (Flotow); Suite (Mussorgsky); Intermezzo from William Ratcliff (Mascagni); Selection from La vie parisienne (Offenbach); Ballet Music from Coppelia (Delibes-Fetras). **6.0,** Radio Journal. **6.15,** Concert (contd.): Waltzes Nos. 4 and 5 (Dvorak); La Guitare (Lalo); Erotica (Grieg); 'Cello Solo: Melody (Smetsky); Indigo March (Joh. Strauss). **7.0,** Educational Talks. **7.55,** Time Signal. **8.0,** Chopin Pianoforte Recital by I. Turczynsky. **8.30,** Violin Solos by A. Theodoresco. **9.0,** Flute Solos by I. Jiano. **9.30,** Light Music and Russian Music, relayed from a Restaurant. **10.0,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 15.5 kW. Also relayed on **840 metres** from **7.25 p.m.** till Close Down.— **6.0 p.m.,** Hungarian Folk Song Recital by Emma Komlossy, with Cigány Music accompaniment. **6.45,** Talk on the Budapest International Fair. **7.0,** Reading. **7.30,** Relay from the Royal Hungarian Opera House. News in the Interval. After the Relay, Concert by the Karl Bura Cigány Band from the Hotel Metropole.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time Signal and Chimes from the Town Hall. **12.15 p.m.,** Broadcast for Schools. **12.45,** Concert by the Harald Andersen String Ensemble, relayed from the Bellevue Strandhotel. **2.0 to 3.0,** Interval. **3.0,** Gramophone Concert: Lotte Lehmann: Sie atmet leicht, from Ariadne auf Naxos (R. Strauss); Elisabeth Rethberg, Beniamino Gigli and Ezio Pinza: Trio from Act III of Attila (Verdi); Andres Segovia (Guitar): Fandanguillo (Torroba); Georg Chambert and Knud Kölder: Duet from Giuntarne (Wenzerberg); Sven-Olof Sandberh: Mor, diskere Mor (silvain); Ernst Ruckstuhl, Lower Woods (Schmalz and Kienzer); Comedian Harmonists: Melody (Savoy). **3.30,** Concert by the Radio Orchestra, conducted by Emil Reesen: Overture, Agnese (Paër); Waltz, Evening Star (Ivanovici); Petite Suite (Debussy); Swedish Folk Melody arranged for Strings (Svendsen); March, Fairest of the Fair (Sousa); Selection from Tosca (Puccini); Waltz from Cinderella (Palmgren); Overture, Les Saltimbanques (Ganne); Suite, Four Ways (Coates); Chinese Tattoo (Durra). In an interval, Talk for Women. **5.45,** Exchange and Fish Market Prices. **5.50,** Agricultural Talk. **6.20,** French Lesson. **6.50,** Weather and News. **7.15,** Time. **7.16,** An Interview with Immanuel Nansen, the President of the Danish Tourists' Association. **7.30,** Talk: Religious Literature. **8.0,** Time Signal from the Town Hall. **8.1,** Concert by the Radio Orchestra, conducted by Lanny Grondahl: Overture, Erlenhügel (Kuhlau); Ballet Music (Schulz); Overture, Ludlams Hule (Weyse); Minuet and Finale from the Symphony in E Flat (Weyse); Dance from Vadelmar (Fröhlich); Overture, Elisa (Kuhlau). **8.50,** Political Talk. **9.20,** Recital of Danish Canons by the Lilly Ericsen Quartet. **9.40,** Reading. **10.10,** News and Announcements. **10.30,** String Quartet in D (Franck), by the Breuning-Bache Quartet. **11.0,** Dance Music from The Lorry Etablissement. In the interval at **12 Midnight,** Time Signal and Chimes from the Town Hall. **12.30 a.m. (Thursday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**12 Noon,** Light Music on Gramophone Records. **12.30 p.m.,** News. **12.45,** Concert of Opera and Operetta Music. **5.30 to 7.0,** Programme in English by the I.B.C.; Announcers, C. Danvers-Walker, B. McNabb, and F. Lamping. **5.30,** Concert for Port-smouth and Southsea Listeners; Orchestra: The Dance of the Tea Dolls (Smith-Hagen); Handsaw Solos, (a) The Rosary (Nevin), (b) In a Monastery Garden (Ketelbey); Orchestra, (a) The Wayside Shrine (Sherwood), (b) Black Eyes (Czibulka); Cornet Solos, (a) The Lost Chord (Sullivan), (b) I hear you calling me (Marshall); Orchestra, (a) The Butterfly (Nevin), (b) Grasshoppers' Dance (Bucalossi); Glockenspiel Solo, The Black Forest Chiming Clock (Doppler); Xylophone Solo, Gold Fishes (Kroeger); The Clock and the Dresden Figures (Ketelbey). **6.15,** Organ Recital for Isle of Wight Listeners: Waltzland Selection (Friml); Chanson (Friml); Schön Rosmarin (Kreisler); Love's Garden of Roses (Haydn Wood); A Brown Bird singing (Haydn Wood); Chant sans paroles (Tchaikovsky); Menuet antique (Watling); Ca c'est Madrid (O'Henry); Waltz Suite No. 3 (Coleridge-Taylor); Longing (Haydn Wood); Broken Dreams (Spitalny). **7.0,** Radio Gazette. **7.20,** Local News. **7.20,** Light Music on Gramophone Records. **7.45,** The Listeners' Half-Hour, followed by News. **8.30,** Concert. **9.0,** Concert of Variety Music, relayed from Le Trépott. **10.0 p.m.** till Close Down. Programme in English by the I.B.C. **10.0 p.m.,** Dance Music by the Ikeolians: Bye bye Blues; Betty Co-ed; I Surrender Dear; Can't we be Friends? The Changing of the Guard; Down beside a Dutch Canal; Just one more Chance; Lonesome Lover; Heartaches; Here comes the Sun; Ho hum; I am the Words, you are the Melody; Oh Glory; Underneath the Spanish Stars; If you're really and truly in Love. **11.0,** Club Concert for Orkney Listeners: The Thistle (Myddleton); The Empire Parade (Eyton); Around the Corner (Kahn); Orchestra: The

SUN. MON. & TUES. PROGRAMMES

Clock is playing (Blaauw); The Flowers of the Forest; Fantasia on Three Old Scottish Airs; The Cuckoo Waltz (Jonassen); 'Cello Solo, The Broken Melody (Van Biene); Great Day (Youmans); McLeod's Galley (Kennedy Fraser); O whistle and I'll come to you (Stephen); Orchestra: (a) Liebestraum (Kreisler), (b) Autumn Leaves (Pepper). **12.0 Midnight,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: Overture, Alessandro Stradella (Flotow); Songs: (a) The Two Grenadiers (Schumann), (b) You along o' me (Sanderson); Accordion Band: A Good Old Irish Stew; Songs: (a) Ah Sweet Mystery of Life, (b) Mary; Air de Ballet (Drigo). **12.30 a.m.,** Military Band Music: Sussex by the Sea (Ward Higgs); Bells across the Meadow (Ketelbey); Wee Macgregor Patrol (Amers); The Ribbon Dance; Policeman's Holiday (Ewing); In a Monastery Garden (Ketelbey); Selection from The Pirates of Penzance (Sullivan). **1.0,** Accordion Duets; Medley of Swedish Airs; Waltz, Lorentina; Song, I'm walking in the Sun; My Florence; Festmarsch; Song Overnight; Marine March; The Blue Danube. **1.30,** Vocal Trios; A Pair of blue Eyes; A bench in the Park; You'll never realise; Orchestra; Sunnyside Up; Laughing Down the Lane; I like to do things for you; Without a Song. **2.0,** Dance Music by the Ibcolians: Round the Bend of the Road; Balloons; How can you say "No"; I don't want to go to Bed; Have you ever been Lonely? Standing on the Corner; Sittin' in the Dark; A Boy and Girl were dancing; Try a little Tenderness; The old Man of the Mountains; When the Morning rolls around; Let's put out the Light; Wanderer; Let's all sing like the Birdies sing. **2.57,** I.B.C. Goodnight Melody **3.0** (approx.). Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.: **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,159 kc/s, 259.3 metres.**—**6.0 p.m.,** Musical Handwriting—Talk by the Inventor, Rudolf Pfenninger. **6.25,** Topical Talk. **6.50,** Time, Programme Announcements, Weather and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** See **Berlin (Königs Wusterhausen). 8.20,** See **Stuttgart. 9.0,** Young Actors—a Radio Sequence (Kurt Sommerer). **9.45,** Song Recital by Gisela Derpsch (Soprano), Hans Pfitzner at the Pianoforte. Four Songs (Schumann): (a) Der Nussbaum, (b) Aus den östlichen Rosen, (c) Märzveilchen, (d) Marienwürmchen; Four Songs (Brahms): (a) O komme, holde Sommernacht, (b) Trennung, (c) Nachtigall, (d) Vergebliches Ständchen; Five Songs (Pfitzner): (a) Abendlied, (b) Mir bist du tot, (c) Nun, da so warm der Sonnenschein, (d) Das verlassene Mägdlein, (e) Kuriose Geschichten. **10.0,** Time, News, Weather and Sports Notes. **10.45,** Cigány Music **from Budapest. 12 Midnight** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—**4.30 p.m.,** Concert by the Symphony Orchestra, conducted by Otto von Sosen: March, Vom Fels zum Meer (Liszt); Overture, King Stephen (Beethoven); Symphonic Poem, Korsholm (Järnefelt); Ballet Music from Austin (Marschner); Waltz, Königskinder (Hanns Löhr); German Triumphal March (Reinecke). **5.30** (from **Kiel**), Talk: Frisian Proverbs. **5.55** (from **Kiel**), Instrumental Concert by Lotte Niemeyer (Violin); Walter Kocks (Bass), and Gerhard Gregor (Organ and Harpsichord): Prelude in G (Bach); Sonata for Violin and Harpsichord; Aria for Bass from the Cantata, Doch weichet ihr tollen vergeblichen Sorgen (Bach); Andantino for Harpsichord and Violin (Martini); Aria for Bass from the Cantata, An irdische Schätze das Herz nicht hänge (Bach); Grave for Violin and Organ (Fr. Bach); Variations on a Theme by Corelli for Violin and Organ (Tartini); Fugue in G (Bach). **6.45,** Exchange and Market Prices. **6.50,** Weather Forecast. **7.0,** Programme for all German Stations, relayed from **Berlin (Witzleben). 8.0,** See **Berlin (Königs Wusterhausen). 8.20,** Variety for Orchestra—a Radio Humoresque for Orchestra and Soloists: Text and Music by Siegfried Scheffler; The Station Orchestra, conducted by José Eibenschütz, the Composer at the Pianoforte; speaking Voice: Bernhard Jakschtat. **9.30,** Announcements. **9.40,** Wulflam—Dialect Radio Play (Wilhelm Plog). **10.50,** Time, Weather, Announcements, Sports, and Police Notes. **11.0,** Orchestral Concert, conducted by Hans Döring: Overture to a Comedy (Lincke); Waltz, Die Romantiker (Lanner); Quadrille on Themes from Der arme Jonathan (Millöcker); Potpourri, Sweden in Song and Dance (Pagel); Old German Gavotte (Lüling) Swedish Country Dance (Lindsay-Theimer); March, Unterm Freiheitsstern (Blankenburg).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.: and **Danzig, 662 kc/s, 453.2 metres.**—**11.30 a.m.,** Concert by the Königsberg Opera House Orchestra, conducted by Werner Franz: Overture, Bruder Lustig (S. Wagner); German Dances (Schubert-Weber); Scandinavian Folk Music (Hartmann); Scherzo (Goldmark); Comedy Overture (Scheinpflug); Homage March (Wagner). **1.5 p.m.,** Light Music on Gramophone Records. In the interval at **1.20,** News. **2.30,** Programme arranged by the Post Office with Gramophone Records. **3.0,** Agricultural Prices and Exchange Rates. **3.20,** Hints for the Housewife. **3.30,** Reading for Children. **4.0,** Talk for Parents. **4.30,** Concert from **Hamburg. 5.30,** Memorial Address for the Eightieth Anniversary of the Death of Ludwig Tieck. **5.45,** Bridge Lesson. **6.15,** Agricultural Prices. **6.25,** Talk: Why should Experienced Salesmen attend Trade Schools? **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** See **Berlin (Königs Wusterhausen). 8.20,** Dance Music. **9.30,** News. **9.35,** Arno Holz Programme for his Seventieth Birthday; Address by Fritz Kudnig; Recitations from the Works of the Poet. **10.20,** Weather and News. **10.30,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Jean de Paris (Boieldieu); Waltz from Eine Nacht in Venedig (Joh. Strauss); Godard Potpourri (Urbach); Entr'acte Gavotte (Gillet); Dance of the Marionettes (Gillet); Rhapsody No. 13 (Liszt); Selection from Der Zigeunerprimas (Kálmán); Waltz, España (Waldteufel). **12 Midnight,** Close Down.

HILVERSUM

296.1 metres; 20 kW. (7kW. up to 5.40 p.m.) **—12.40 p.m.** till Close Down, Programme of the Workers' Radio Society (V.A.R.A.) **12.40,** Orchestral Concert, conducted by H. de Groot. Soloist: M. E. Franken (Songs). Le Jongleur (Rosey); Serenade (Mozkovsky) Caravane hindoue (Popy); Romance (Svendsen); Chanson triste (Tchaikovsky); Waltz, Gold and Silver (Lehár); Songs: (a) Morgen geht's uns gut (Benatzky), (b) Liebe kommt—Liebe geht (Gray), (c) Flieger, grüss mir die Sonne (Gray), (d) Ueber den Dächern von Berlin (Gray); Geburtstagsständchen (Lincke); Der Rosen Hochzeitszug (Jessel); Gavotte No. 2 (Popper); Très jolie (Waldteufel); Songs: (a) Matrosenlied (Gray), (b) Schön und verwegen ist das Seemannsleben (Wenneis), (c) Song, Rose Dreams (Wesley); Hiawatha (Moret); Valse poudrée (Popy); In the Shadows (Finck); Oh, listen to the Band (Monckton). **2.25,** Interval. **2.40,** Programme for Women. **3.40,** Programme for Children. **6.10,** Organ Recital by J. Jong: Movement from the Unfinished Symphony (Schubert); Gavotte (Godard); Canzonetta; Un soir chez Emile Hullebroeck (Wiggelaar); Kerselhoesem (Albert); Melody (Plessow); Mon barbier (Reisfeld-Barbot). **7.10,** Singing Lesson, by Mlle. Meta Reidel. **7.40,** Talk. **8.0,** Talk by M. E. Kupers. **8.20,** S.O.S. Announcements. **8.25,** Life in these Times—Musical Play (Nick). **10.25,** News. **10.40,** Orchestral Concert: Liberty Bell March (Sousa); Selection from The Desert Song (Romberg); Sérénade d'un passant (Massenet); Am Brunnen (Rust); Selection from Der Waldmeister (Joh. Strauss); Der letzte Pferdenzug (Raasch); Waldteufel Potpourri (Leopold). **11.25,** Popular Music on Gramophone Records. **11.40,** Organ Recital by M. C. Steyn: Tangolita (Abrahams); Spring in Japan (Jessel); Une larme (Mussorgsky); Twilight (Friml); De blik van je oogen (Linden); A Bedtime Story (Towers). **12.10 a.m. (Thursday),** Popular Music on Gramophone Records. **12.40 a.m.** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

1,875 metres; 8.5 kW.—Programme of the Christian Radio Society (N.C.R.V.). **11.40 a.m.,** Organ Recital. **12.40 p.m.,** Police Notes. **12.55,** Light Music on Gramophone Records. **1.10,** Pianoforte Recital by Hans de Bock: Gavotte (J. Ch. Bach); Gavotte (Martini); Minuet from Le Bourgeois Gentilhomme (Lully); Noeturne (Chopin). Gramophone Records: Petit Poucet (Ravel); Graftombe Elizabeth (Hans de Bock); Three Chinese Pieces (Tsan Feng). **1.55,** Quartet Concert: Das ist der Tag des Herrn (Krentzer); Five Sacred Pieces; Largo from the Sonata in G Minor (Händel). Gramophone Records: Psalm 64; Divertimento (Mozart); Potpourri, Aus Mozarts Reich (Urbach); La Paloma (Yradier); Nach Wintermärchen (Czibulka); Le Bonheur (Silésu); Butterfly Waltz (Friml). Gramophone Records: Marche humoresque (Söchting); Spring Song (Kjerulf); Neues Leben (Jensen); Overture, Norma (Bellini). **3.40,** Programme for Women. **4.10,** Violin Recital by Mme. Velde-Stortenbeker; Sonata in G No. 11 (Mozart); Elegy (Sinding); Selection from The Violin-Maker of Cremona (Hubay); Chant hindou (Rimsky-Korsakov); Gramophone Records: Concerto in E Minor (Nardini). **5.10 to 5.40,** Interval. **5.40,** Programme for Children. **6.40,** Military Talk. **7.10,** Light Music on Gramophone Records. **7.40,** Talk. **8.10,** Police Notes. **8.25,** Ecclesiastical Report. **8.40,** Orchestral and Choral Concert. Choral: Psalm 68, Fantasia (Schweinsberg); Finale (Bach); The Bird of Paradise (Thiene-Bielen); Memories of Resz (Peter-Bielen); Selection from Faust (Gounod-Lucas); March, Blaze Away (Holzman). **9.40,** Talk for Parents. **10.10,** Organ Recital by Jan Zwarz. In the intervals, Election Results. **11.10,** News. **11.20,** Light Music on Gramophone Records. In the intervals, Election Results. **12.40 a.m.** (approx.) **(Thursday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News, Financial Notes and Racing Results. **8.10,** English Lesson. **8.30,** Radio Concert. **9.0,** Weather, Racing Results and News. **9.15,** Concert. **12 Midnight to 1.0 a.m. (Thursday),** Programme in English by the I.B.C. H. K. Hitchcock announcing. **12 Midnight,** Vocal Concert. Song at the Forge (Wagner); Spring Song (Wagner); Orchestral Selection from Cavalcade (Coward); Don Juan's Serenade (Tchaikovsky); To-morrow (Keel); Largo al Factotum (Rossini); Orchestra: Die Spieluhr des Pompadours (Noack). **12.30 a.m. (Thursday),** Orchestral Concert Merrymakers' Dance from Nell Gwynn (German); Les Trésors de Colombine (Drigo); Le Balcon (St. Denis); Souvenir (Drdla); Liebestraum (Liszt); Serenata No. 2 (Toselli); Chant sans Paroles (Tchaikovsky); Country Dance from Nell Gwynn (German). **12.57,** I.B.C. Good-night Melody. **1.0** (approx.). Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**7.0 p.m.,** Talk for the Silesian Housewife. **7.15,** Announcements and Gramophone Records. **7.25,** Report of the Polish Youth Association. **7.30 to 10.20,** See **Warsaw. 10.20,** Light Music on Gramophone Records. **11.0,** The Letter Box in French, for Foreign Listeners.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

535 kc/s, 473 metres; 60 kW. **12 Noon,** Concert, conducted by Wolf: March, Reichswehr (Blankenburg); Overture, Marinarella (Fucik); Selection from Stradella (Flotow); Waltz, Estudiantina (Waldteufel); Fantasia, Hirtenleben in de Alpen (Kling); Potpourri, Der Spottvogel (Mannfred). **12.50,** Weather, Time, and Announcements. **1.0,** Concert, conducted by Eysoldt: Overture, The Nuremberg Doll (Adam); Three Dance Airs (Derksen); Scenes from Tosca (Puccini); Hungarian Rhapsody (Popper); Canzonetta (d'Ambrosio); Tambourin (Gossec); Waltz, Ever or Never (Waldteufel); Potpourri, From A to Z (Geiger). In an interval at **2.0,** Announcements. **3.0,** Talk: The Bringing-up of Children among Primitive Peoples. **3.30,** Economic Notes and Time Signal. **3.50,** Programme for Young People. **4.30,** See **Stuttgart. 5.50,** Reading in Dialect. **6.0,** Talk on the Cathedrals at Speyer, Worms and Mainz. **6.25,** Health Talk. **6.50,** Weather, Time, Economic Notes, and Sports Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** See **Berlin (Königs Wusterhausen). 8.25,** Concert of Opera and Operetta Music, by the Small Station Orchestra, conducted by Eysoldt; Part I: Opera Music: Overture, The Ace of Hearts (Künneke); Scenes from La cena della belle (Giordano); Prelude to Act III of Kunihild (Kissler); Dance from Czar and Carpenter (Lortzing); Overture, Hans Heiling (Marschner); Part II: Operetta Music: March, Der Zauber der Montur, from Die Landstreicher (Ziehrer); Selection from The Blue Mazurka (Lehár); Song, Rosen, Tulpen, Nelken from Prinzess Rosin (Lincke); Air from The Dubarry (Mackeben); Waltz from Hoheit tanzt Walzer (Ascher); Overture, Ein Opernball (Heuberger). **9.50,** The Life of a Racehorse, relay from **Cologne. 10.25,** Announcements, Educational Notes and Sports Results. **10.30,** Cigány Music, relayed from **Budapest. 12 Midnight** (approx.). Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.: and **Dresden, 941 kc/s, 319 metres.**—**12 Noon,** Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber. In the interval at **1.0 p.m.,** News, Weather, and Time Exchange Quotations after the Concert. **1.30 to 2.30,** Programme for the Unemployed. **3.35,** Market Prices. **4.0,** Programme for Young People. **5.50,** Economic Notes, Weather and Time Signal. **6.0,** Reading from the Works of Max Dauthendey. **6.20,** Talk: Gold and Industrial Conditions. **6.45,** Programme to be announced. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** See **Berlin (Königs Wusterhausen). 8.20,** Concert of Wind Instrument Music. **9.35,** News. **9.45,** Nacht in Bezweczmisl—a Radio Play from the Book by Heinrich Zschokke (Fritz Mack). **10.30,** News, followed by Soloist Concert. **12 Midnight,** Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**5.0 to 5.30 p.m.,** Programme in English by the I.B.C.: International Broadcasting Club Concert, On the Mall; Thunder and Blazes; Play, Fiddle, play; I'll never have to dream again; Honest, really, truly; Three Little times; The Night was made for love; Tomorrow Night we'll meet again. **5.30,** Reading. **6.0,** Popular Music on Gramophone Records. **7.0,** Russian Lesson. **7.30,** Literary Review. **8.0,** Song Recital. **9.15,** Quartet Concert. **10.0,** Weather and News. **10.30** (approx.), Close Down.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** Variety Concert. **11.45** (in an interval), Radio Chronicle. **12.35 a.m. (Thursday),** Talk. **12.40,** Light Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Topical Review, Talk on Spanish Products—Rice, and Request Gramophone Records. **9.25,** News and Political Review. **9.30 to 10.30,** Interval. **10.30,** Chimes, Time Signal and Political Review. **10.45** (approx.), Dramatic Programme. **12.45 a.m. (Thursday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,367 kc/s, 263.8 metres; 11 kW.—**6.25 p.m.,** Concert of Light Music by the Station Orchestra, conducted by Musil. **7.0,** See **Prague. 7.25,** Concert by the Station Orchestra (contd.). **7.55,** See **Prague. 10.5** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**6.30 p.m.,** Concert, relayed from the Radio Theatre. **8.0,** Talk in Czech: In the Time of the Czars. **9.0,** Talk in English: The Soviet Navy. **9.55,** Time Signal. **10.5,** Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—**4.55 p.m.,** Concert conducted by Erich Klosz: Overture, Pique Dame (Suppé); Waltz Intermezzo from Kleider machen Leute (Zemlinsky); Selection from Rigoletto (Verdi); Walzerträume, Op. 61 (Schumann); Serenade à Toscanini (Murzilli); Ballet Intermezzo (Bayer). **5.45,** Talk: The Way to attain a high Shorthand Speed. **6.5,** Talk: The Holy Roman Empire and the German Nation. **6.25,** Gardening Talk. **6.45,** Time, Weather and Agricultural Report. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** See **Berlin (Witzleben). 8.20,** Concert by the Station Orchestra, conducted by Karl List: Overture, Frau Aventieure (Noetzel); Musik um Morgenstern—a Radio Sequence Althaus, Music by H. Schilling); Selection from The Merry Wives of Windsor (Nicolai); Die Advokaten—Humorous Trio for Two Tenors and Bass (Schubert-Kundigraber); Fugue in G (Mozart). **9.20** (from **Augsburg**), Report on the Hungary versus Bavaria Water Polo Match. **9.55,** Pianoforte Sonata in A Flat (Weber) by Horace Roemer. **10.20,** Time, Weather, News and Sports Notes. **10.45,** Serenade conducted by Erich Klosz.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 816 kc/s, 365.8 metres; Hamar, 536 kc/s, 522 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**5.30,** Dance Music and Light Music by the Spelmannsgutta Trio. **6.0,** French Lesson. **6.30,** Programme for Girls. **6.45,** Programme for Scouts. **7.0,** Announcements, Weather,

and News. 7.30, Talk on Psychological Problems. 8.0, Time Signal. 8.1, Beethoven Concert by the Station Orchestra, conducted by Hugo Kramm. Soloist: Walther Frey (Pianoforte); Suite from Prometheus; Concerto in E flat for Pianoforte and Orchestra: Overture, Leonora, No. 3. 9.10, Talk. 9.30, Market Prices, Weather, and News. 10.0, Topical Talk. 10.15, Readings (Björnson and Ansteinsson). 10.45 (approx.). Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 542 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Notes, Tourist Report, Agricultural Notes, and Giornale Radio. **8.20,** Popular Music on Gramophone Records. In an interval at **8.33,** Time Signal and Announcements. **8.45,** Concert of Imitative Music. In an interval, Talk by M. Taccari: Confessions before the Microphone. After the Concert, Programme of Songs. **10.55,** News.

PARIS

EIFFEL TOWER, Call FLE 297.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals). **6.45 p.m.,** Talk on Music, with Illustrations. **7.0,** Le Journal Parlé. In the interval at **7.45,** Programme for Children. **8.45,** Acts II and III of Hérodiad—Opera (Massenet), relayed from the Opera. **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé and Foreign Press Review. **7.5,** Gramophone Concert of Popular Music. **8.0,** Talk: Parasites. **8.15,** Interval. **8.30,** Barlé-blonde—Play (Bouvelet and Bradby). **10.30,** Dance Music, relayed from the Lido. **11.0,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Ballet Music from Sylvia (Delibes), on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Concert by the Radio Paris Orchestra: Selection from L'Amour masqué (Messager). **12.30 p.m.,** Organ Recital, relayed from the Gaumont Palace: Overture, Masaniello (Auber); Cuban Love Song (Stothart-Wood); Selection from The Gipsy Princess (Kalman); Let's put out the Lights (Hupfeld). **1.0,** Exchange, News and Weather. **1.5,** Orchestral Concert (contd.): Operetta Melodies (Lehar) from: (a) Paganini, (b) The Land of Smiles, (c) The Czarevitch, (d) Frasquita, (e) Frederica; Selection from La Camargo (Lecocq); The Mikado (Sullivan); Barbe bleue (Offenbach) and Pepita Jiménez (Albeniz). In the interval at **1.30,** Exchange. **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.30,** Market Prices, Weather, Agricultural Report and Exchange. **6.40,** German Lesson. **7.0,** Medical Talk. **7.20,** Concert: The Trades in Song; Le Chant du Bûcheron (Gregh); The Juggler (Grutsch); Prélude du Berger (Muquet); Le Chant des Muletiers (Pesse); Spinning Song (Mendelssohn); Song of the Gondoliers (Mezzacapo); Bacchanale from La Fête des Vignerons (Doret-Rousseau); Les Toreros (Etcheverria). **7.50,** Commercial Prices and News. **8.0,** Readings: Monologues of the Good Old Times. **8.30,** News and Weather. **8.40,** Fashion Review by Mlle. José. **8.45,** Concert of Chamber Music: Sonata for Violin and 'Cello (Ravel); Three Pieces for Harp: (a) Le Moucheron (Couperin), (b) Danse des Sylphes (Godefroid), (c) Waltz (Brahms); Violin Solos: (a) Radisch (Vladimir Dyck), (b) Nocturne in D (Chopin-Wilhelmy); Four Pieces for Pianoforte: (a) Lucioles (F. Schmitt), (b) Impromptu (Grondhal), (c) Brouillards (Debussy), (d) Tierces alternées (Debussy); String Quartet No. 2 (Milhaud). In the interval at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**10.0 p.m.,** Work-a-day Thoughts. **10.5,** Business News. **10.15,** Programme to be announced. **10.30,** Weather Report. **10.32,** Market Reports. **10.45,** Programme to be announced. **10.57,** David Lawrence Dispatch. **11.0,** Jean and Gene. **11.15,** Dick Daring, from **New York. 11.30,** The Singing Lady. **11.45,** Little Orphan Annie, from **New York. 12 Midnight,** Booth Tarkington's Maude and Cousin Bill, from **New York. 12.15 a.m. (Thursday),** Time Signal. **12.16,** Weather Report. **12.17,** Tea-leaf Sport Review. **12.22,** Press News Reeler. **12.29,** Temperature Report. **12.30,** The Four Musical Horsemen. **12.45,** Today's News by Lowell Thomas, from **New York. 1.0,** Amos 'n' Andy, from **New York. 1.15,** Programme to be announced. **2.0 to 4.15, New York** Relay. **2.0,** Eno Crime Clues. **2.30,** Time Signal and Ann Butler (Comedienne). **2.45,** Phil Cook and the Ingram Shavers. **3.0,** Adventures of Sherlock Holmes. **3.30,** Woodbury Programme with Morton Downey and Donald Novis. **4.0,** Arlene Jackson. **4.15,** Around the Cracker Barrel. **4.30,** The Midway, from **New York. 5.0,** Time Signal. **5.1,** Teaberry Sport Review. **5.11,** Temperature Report. **5.12,** Weather Report. **5.15,** Press Last Minute News Flashes. **5.29,** Dave Roberts—Left-handed Banjoist. **5.30,** Jack Pettis and his Orchestra. **5.58,** KDKA Artist Bulletin. **6.0,** Hotel Part Central Orchestra, from **New York. 6.30,** Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by K. Ancerl. Overture, The Secret Marriage (Cimarosa); Eine kleine Nachtmusik (Mozart); Overture, The Secret (Smetana); Overture (Suk); Bacchanale from Under the Apple Trees (Suk); Two Wallachian Dances (Janacek). **5.0,** Talk. **5.10,** A Marionette Play (Srpova). **6.5,** Talk on Forestry. **6.15,** Talk for Workers: Collectivism. **6.25,** News in German. **6.33,** German Transmission: Talk for Children, Talk for Workers, and Labour Market Report. **7.0,** Chimes. **7.1,** News. **7.10,** Talk: How I became a Reporter. **7.25,** See **Brno. 7.55,** Talk on the following Transmission. **8.5,** Concert by the Czech Philharmonic Orchestra, conducted by O. Jeremias. Soloists: E. Hadrabova (Soprano), of Vienna, O. Marak (Tenor), and F. Daniel (Violin). Symphonic Poem, Macbeth (R. Strauss); Violin Concerto in E Minor, Op. 64 (Mendelssohn); First Symphony for Soprano, Tenor and Orchestra (Mandic). In the interval at **9.0,** Time Signal. **10.0,** Time Signal. **10.1,** News Bulletin. **10.15,** News in French for Foreign Countries. **10.30** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 595 kc/s, 760 metres.**—**6.0 p.m.** (from **Geneva**), Programme of Songs and Tales for Children. **7.0** (from **Lausanne**), Weather and News. **7.30** (from **Lausanne**), Talk on Viniculture. **8.0,** Concert by the Radio Suisse Romande Orchestra. **9.0** (from **Lausanne**), Popular Programme. **10.0,** News and Weather. **10.0** (from **Montreux**), Dance Music from Le Perroquet. **11.0** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres).**—**1.10 to 2.15 p.m.,** Orchestral Concert, Song (Buchmann); Valzer appassionato (Simonetti); Martha (Gilbert); Good-bye (Tosti); Selection from La Bohème (Puccini); Song (Friend); Risveglio mattutino (Malvezzi); Parlez-moi d'amour (Lemoir); Festa campestre (Amadei); Kiss of Love (Stransky). In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Children's Radio Review. **5.10,** Announcements. **5.15,** Exchange. Report of the Royal Geographical Society and Giornale Radio. **5.30 to 6.15,** Orchestral Concert. Demonietto biondo (Cortopassi); Prelude and Waltz (Massarani); Serenata andalusa (Culotta); Sentimental Jazz (Nissim); Selection from Iris (Mascagni); Pianoforte Solo, Etude (Zelioli); Zampognari al villaggio (Palumbo); La ronda degli arlecchini (Pick-Mangiagalli); Moto perpetuo (MacDowell); Poor Tom (Fiaccone). **7.0 (Naples),** Shipping and Sports Notes. **7.10,** Agricultural and Dopolavoro Notes. **7.20,** Giornale Radio. **8.0,** Time, Announcements and Gramophone Records of Light Music. **8.15,** Medical Talk. **8.30,** Sports Notes and Tourist Report. **8.45,** Relay from a Theatre or Concert in the Studio. In the intervals, Reading of Poems, and Theatre Notes. News after the Programme.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** and by **W2XAD** (See Short Wave List).—**8.30 to 9.30 p.m.** (approx.), **New York** Relay. **8.30,** Westminster Choir. **9.0,** Two Seats in the Balcony. **1.0 a.m. (Thursday)** Soloist, from **New York. 1.15,** Stock Reports. **1.30,** Marion Williams (Soprano) and Roger Sweet (Tenor). **1.45 to 3.30, New York** Relay. **1.45,** The Goldbergs—Comedy Sketch. **2.0,** Royal Vagabonds. **2.30,** The Shadow—Mystery Drama. **3.0,** General Tire Programme. **3.30,** Musical Programme, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER. 653 kc/s, 459 metres; 60 kW.; **BASLE, 1,229 kc/s, 244.1 metres,** and **BERNE, 1,220 kc/s, 245.9 metres.**—**12.28 p.m.,** Time Signal from Neuchâtel Observatory. **12.30,** Weather and News. **12.40** (from **Berne**), Military Band Concert. **1.10** (from **Berne**), Songs on Gramophone Records. **1.35,** Weather and Exchange. **1.40 to 3.30,** Interval. **3.30 to 5.30,** Programme from **Basle. 3.30,** Waltzes and Marches on Gramophone Records. **4.30,** Programme for Children. **5.0,** French Songs for Children, on Gramophone Records. **5.30,** Weather Report. **5.35 to 6.30,** Interval. **6.30** (from **Zürich**), Talk: Swiss German Dialect. **7.0,** Time, Weather and Market Prices. **7.15** (from **Zürich**), Elementary English Lesson. **7.45** (from **Basle**), Reading from the Brahms Novel, Lied des Schicksals (Kurt Arnold Findriesen). **8.0** (from **Basle**), Brahms Festival Concert by the Basle Bach Choir, relayed from the Cathedral. Soloists: Felix Löffel (Bass), Adolf Hamm (Organ), and Martha Hamm-Stoecklin (Organ accompaniment). **9.30,** Weather and News. **9.40,** Concert by the Station Orchestra. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Goteborg, 932 kc/s, 322 metres; Horby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**5.5 p.m.,** Song Recital by Ake Brodin. **5.30** (from **Sundsvall**), Reading. **6.0,** Popular Music on Gramophone Records. **7.0,** A Visit with the Microphone. **7.15,** Weather and News. **7.20,** Talk: The History of the Reformation in Sweden, relayed from **Malmo, 1,301 kc/s, 231 metres. 8.0,** A German Requiem (Brahms) for Soloists, Choir and Orchestra; The Stockholm Concert Society: Conductor, Vaclav Talich; Soloists, Ruth Althén and Joel Berglund. **9.55,** Weather and News. **10.0,** Dance Music. **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Gramophone Concert: Bolero (Ravel); Suite rusticale (Messager); Symphonic Poem, Le chasseur maudit (Franck); Spanish Caprice (Rimsky-Korsakov); La Valse (Ravel). **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Concert of Light Music on Gramophone Records. **2.0 to 4.0,** Interval. **4.0,** Organ Recital by John Girard, relayed from **Radio Coloniale (Paris), 15,243 kc/s, 19.68 metres. 5.0,** Orchestral Concert, conducted by Roskam: March Novelty (Pelloud); Waltz, Fleurs papillons (Witz); Overture, Der lustige Krieg (Joh. Strauss); Selection from Die Teresina (O. Straus); Three English Dances (German); Melody (Filipucci); Selection from La Haut (Yvain); March, Garde de Nuit (Zgoublier). **6.0,** Variety Concert, relayed from **Lille, 1,130 kc/s, 265.4 metres. 7.0,** Legal Talk in French. **7.15,** Talk in French on Electricity. **7.30,** Time and News. **7.45,** See **Paris (Eiffel Tower). 8.15,** Press Review in German and Lottery Results. **8.30,** Orchestral Concert conducted by Maurice de Villers: Overture, Les Troyens à Carthage (Berlioz); La boîte à joujoux (Debussy); Two Scenes from The Prodigal Son (Debussy). In an interval at **9.30** (approx.), Press Review in French. **10.30,** Gramophone Concert: Concerto in C for Two Pianofortes (Bach); Si pel and Credo (Verdi); Concerto in D Minor for Two Violins (Bach); Morgen (R. Strauss); Extracts from the Twenty-four Preludes (Chopin); Symphony in D Minor (Franck); Ballad (Fauré). **12 Midnight** (approx.), Close Down.

STUTTGART

MURLACKER, 832 kc/s, 360.5 metres; 60 kW.; and Freiburg, 527 kc/s, 570 metres.—**12 noon,** Gramophone Concert of Popular Music. **1.30,** Concert from Langenberg. **2.0,** Concert arranged by the Post Office. **3.30,** A Radio Sequence for Children. **4.30** (from **Pforzheim**), Concert by the Pforzheim Symphony Orchestra, conducted by Julius Schröder. **5.50,** Time, Weather and Economic Notes. **6.0,** Talk: Building a House. **6.25,** Talk: Wild Flowers. **6.50,** Time and News. **7.0,** Transmission for all German stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** See **Berlin (Witzleben). 8.20,** Concert by the Stuttgart Philharmonic Orchestra conducted by Gustav Görlich; Soloist, Gerda Hansi (Soprano). **9.0,** See **Frankfurt. 9.45 to 10.45,** Talk; International Programme Exchange. **11.0,** Cigány Music from **Budapest. 12 Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—**6.15 p.m.,** Argentine Music. **6.30,** Military Music. **6.50,** Musical Programme and Talk. **7.15,** News, Racing Results, and Exchange. **7.25,** Local News. **7.30,** Opera Music: Airs from The Magic Flute (Mozart), Sigurd (Reyer), and L'Attaque du Moulin (Bruneau). **7.45,** Viennese Music. **8.15,** Sound Film Music. **8.30,** Accordion Solos. **8.45,** Song Recital. **9.0,** Concert by La Clémence Isaur Musical Society; Light Music in the Interval. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Orchestral Music. **11.15,** Opéra-Comique Songs. **11.30 to 12 Midnight,** Programme in English by the I.B.C., W. Brown-Constable announcing. **11.30,** Military Band Music: March, Blaze away (Holzmann); Selection from San Toy (Jones); Fantasia, The Thistle (Myddleton); Waltz, The Blue Danube (Joh. Strauss); Medley, Ballad Memories (arr. Baynes); March, Distant Greeting (Loring). **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Thursday),** Operetta Songs. **12.15,** Dance Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.0 to 6.0 p.m.,** Variety Concert: Pianoforte Solo, The Italian Concerto (Bach); Soprano Solos: (a) Baci amorosi e cari (Mozart), (b) Quelle labbra (Donandy), (c) Vorrei poterti odiare (Donandy); Pianoforte Solos: (a) Berceuse (Chopin), (b) Lament (Liszt), (c) Moto perpetuo (Saint Saëns); Soprano Solos: (a) Vieni (Denza), (b) Gotine gialle (Brogi), (c) E canta il grillo (Billi); Pianoforte Solos: (a) Cradle Song (Grieg), (b) Etude in C Minor (Chopin). **6.35** till Close Down. See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,095 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.3 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**5.0 to 6.0 p.m.,** Song Recital. **6.35,** Giornale Radio, and Agricultural and Dopolavoro Notes. **7.0,** Time, Tourist Report, and Gramophone Records of Light Music. **7.20,** Giornale Radio. **7.45,** Gramophone Records (contd.). **8.0,** Announcements, Giornale Radio, and Weather. **8.15,** Medical Talk. **8.30,** A Comedy in Three Acts, followed by Orchestral Concert. **11.0,** Giornale Radio. **11.5 to 11.30 (Florence),** Dance Music Relay.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning); and **5,969 kc/s, 50.25 metres (Evening);** 10 kW.—**11.0 to 11.15 a.m.,** Religious Information in Spanish. **8.0 to 8.15 p.m.,** Religious Information in Italian.

VIENNA

RADIO-WIEN, 581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,573 kc/s, 218.5 metres.**—**4.55 p.m.,** Concert of Contemporary Austrian Music. Marianne Mislap-Kapper (Soprano), Josef Hueber (Baritone), Magda Hajos (Violin), and Hedda Ballon (Pianoforte). Part I: Songs: Meine Lust ist Leben (Kienzl); Im Zimmer (Alban Berg); Nocturne (Schadler); Wenn meine Mutter lacht (Paul Mandsky); Vigilie (Franz Mittler); Hexenlied (Lio Hans); Im Frühling (Karl Weigl); Summer Song (Zeisl). Part II: Pianoforte Pieces: Feierlicher Tanz (Kanitz); Fugue (Frankl); Summer Night (Kattnigg); Gavotte (Gross); Prelude and Fugue (Spitzmüller-Harmersbach). Part III: Baritone Solo: An den Mistral (Walter Klein). Part IV: Violin Sonata in G Minor, Op. 4 (Karl Winkler), the Composer at the Pianoforte; Violin Sonata in G Minor, Op. 4. **6.10,** Talk: The Prinz-Eugen Exhibition. **6.20,** Health Talk. **6.40,** Talk: The Technical Schools of Austria. **7.5,** Programme to be announced. **7.30,** Time, Weather and Programme Announcements. **7.40,** Wann i vem Kahlenberg herunterschau (Edmund Skurawy), with Music by Josef Holzer and his Band. **9.0,** Tilly in Germany—a Radio Sequence. **10.15,** News, Weather and Announcements. **10.30,** Cigány Music, relayed from **Budapest.**

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Light Music on Gramophone Records. **1.20,** Weather Forecast. **1.25 to 3.10,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.30,** Boy Scouts' Report. **3.35,** Programme for Children. **4.0,** Popular Music on Gramophone Records. **4.20,** Educational Talk. **4.40,** Talk: Poachers and Poaching. **5.0,** Vita brevis, ars longa—Gramophone Concert, with Commentary, relayed from **Lwów, 788 kc/s, 381 metres. 5.40,** Talk: Work Rooms for the Young Unemployed in Vienna. **5.55,** Programme Announcements. **6.0,** Talk on Biology. **6.20,** News. **6.25,** Dance Music relayed from the Café Gastronomia. **7.0,** Miscellaneous Items. **7.20,** Agricultural Letter-Box. **7.30,** Reading. **7.40,** Radio Journal. **8.0,** Choral Concert of Cigany Music. Soloist: Olga Kamicuska. **9.0,** Sports Notes. **9.5,** Radio Journal. **9.10,** Chamber Music by the Polish Quartet: (a) Quartet in F, Op. 10 (Statkowsky), (b) Quartet in D, Op. 4 (Sikorsky). **10.0,** Topical Talk. **10.15,** Dance Music on Gramophone Records. **10.40,** Talk in Roumanian, relayed from **Lwów. 10.55,** Aviation Weather Report and Police Notes. **11.0,** Dance Music relayed from the Adria Dance Hall.

ZURICH.—See **Schweizerischer Landessender.**

THURSDAY

APRIL THE TWENTY-SEVENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Light classical concert.
LONDON REGIONAL	"Coriolanus," part 2, by Shakespeare.
MIDLAND REGIONAL	Choral concert from the Shire Hall, Gloucester.
WEST REGIONAL	Three plays of Victorian politics, by Laurence Housman.
SCOTTISH REGIONAL	"The MacCrimmons of Skye," by F. T. Macleod, illustrated by pipe music.
NORTH REGIONAL	The Lancashire Mummers' Concert Party.
BELFAST	Concert by prize-winners from the 1933 Belfast Musical Competitions.

ABROAD

BRUSSELS (No. 2)	9 p.m. Wagner concert.
COPENHAGEN	8.10 p.m. Concert conducted by Hans Weisbach.
FRANKFURT	8 p.m. Gala concert in connection with the Alsace Lorraine meeting.
HILVERSUM	10.20 p.m. Brahms concert from Amsterdam, conducted by W. Mengelberg.
LANGENBERG	7 p.m. Spring on the Rhine, from Cologne (relayed by other German stations).
RADIO PARIS	8 p.m. Symphony concert conducted by Eugène Bigot.
ROME	8.45 p.m. Symphony concert, conducted by Fritz Reiner.
STUTTGART	8.25 p.m. Contemporary music and literature.
TURIN	9 p.m. Opera: "Lodoletta" (Mascagni), from the Scala, Milan.

ATHLONE

725 kc/s, 413 metres 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.10,** Dublin Cattle Market Report. **7.20,** News. **7.30,** Time Signal. **7.31,** French Lesson. **7.45,** Literary and Dramatic Talk. **8.0,** Cork Traditional Quartet. **8.20,** Soprano Solos by Mai Corkeran. **8.35,** A Sketch presented by Ian Priestly Mitchell and Company. **9.5,** The Station Orchestra. **9.30,** Pianoforte Recital by D. French Mullen. **9.50,** The Station Orchestra. **10.30,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

RADIO BARCELONA (EAJ1), 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Records. **8.30,** Exchange Quotations. **8.40** (approx.), Talk in Catalan, relayed from the University. **9.0,** Popular Gramophone Records and News. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange and Market Prices. **10.5,** Concert by the Station Orchestra: Waltz, Zwei Herzen im Dreivierteltakt (Stolz); Selection from Luisa Fernanda (Moreno Torroba); La pequeña máquina de coser (Limenta); Canción d'amore (Pennati-Malvezzi); Romero y tomillo (Millan); Overture, Le roi d'Ys (Lalo). **11.0,** Foc Nou—Drama in Three Acts in Catalan (Ignacio Iglesias). **12 Midnight** (in an interval), News Bulletin. **1.0 a.m. (Friday)** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Notes, Tourist Talk and Dopolavoro Notes. **8.20,** Giornale Radio and Weather. **8.30,** Time and Announcements. **8.35** (approx.), Military Band Concert. In the interval, Talk. **10.30,** Light Music on Gramophone Records. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**4.0 p.m.,** Folk Songs. **4.30,** Gramophone Records of Popular Music. **5.0,** Talk. **6.25,** Time and Programme Announcements. **6.30,** French Dialogue. **7.0,** Orchestral Concert: Serbian Festival March 1912 (Frait); Potpourri, from Southern Lands (Dominis); Oriental Intermezzo, Schabedin (Dominis); Serenade and Spanish Dance from An Evening in Aranjuez (Schmeling); Selection from Lilac Time (Schubert-Berté). **8.0,** Programme from Budapest. **10.0,** News, followed by Concert from the Ratnicki Dom Restaurant.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—**2.0 p.m.,** Gramophone Concert from **Berlin (Witzleben). 3.0,** Programme for Young People: Sport in Paris, London and Berlin. **3.30,** Weather and Exchange Quotations. **3.45,** Reading: Die Feuerflamme (Hermann Stehr). **4.0,** Talk for Women. **4.30,** See **Berlin (Witzleben). 5.10,** Topical Report: Respect for Labour in the New State. **5.30,** Song Recital by Alfred Wilde: Adelaide (Beethoven); Three Songs (Schubert): (a) Im Abendrot, (b) Wohin, (c) Der Neugierige; Two Songs (W. Schnell): (a) Lenzlust, (b) Der goldene Morgen. **6.0,** A Poem. **6.5,** Reading from the Writings of the North Pole Explorer Knut Rasmussen: Eskimos, People of the Stone Age and Ourselves. **6.30,** Agricultural Talk. **6.50,** Weather, followed by Wireless Notes. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Concert by the Station Chamber Orchestra, conducted by Edwin Lindner. Soloist: Georg Kuhlenkampff: Divertimento in C (Joh. Ritt): La Folia (Corelli); Minuet for Strings (Haydn); Violin Concerto in A (Mozart); Italian Serenade (H. Wolf). **9.30,** Raphael—a Radio Sequence for the Four Hundred and Fiftieth Anniversary of his Birth (Kurt Karl Eberlein). **10.15,** Weather, News and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Concert and Dance Music relayed from **Langenberg. 12 Midnight** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.30 p.m.,** Concert by the Arthur Andrae Orchestra: Overture, Der Waldmeister (Joh. Strauss); Waltz, Geschichten aus dem Emstal (Pachernegg); Selection from Love's Awakening (Künneke); Minuet, Tanzweise (Derksen); Suite, Aus deutschen Märchen (Thiel); March, Deutscher Föhn (Hanfstaengel). **5.15,** Talk by the German Sculptress Maria Müller-Martin on her Portrait of Mussolini. **5.35,** Dialogue for Young People: Hiking alone or in Parties. **5.55,** String Quartet in F Sharp Minor, Op. 121 (Max Reger); by the Kampfbund Quartet. **6.25,** Talk: German Idealism. **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.5,** Announcements. **8.10,** Concert by the Herms Niel Wind Instrument Orchestra and the Georg Freuendorfer Zither Trio. Soloist: Maria Roland (Yodelling). **9.30,** Johannes Brahms—a Radio Picture. Part I —Childhood and Youth. **10.10,** Weather, News and Sports Notes, followed by Dance Music from the Europa-Pavillon. **12 Midnight** (approx.). Close Down.

BERNE.—See **Schweizerischer Landsssender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**6.30 p.m.,** Radio-Journal. **7.40,** Talk arranged by the International Labour Bureau. **7.55,** Lottery Results. **8.0,** Talk on Wine. **8.15,** News. **8.30,** Popular Music on Gramophone Records. **9.0,** Two Comedies: (a) Puisque je t'aime (Brieux), (b) L'Incomparable Ami (Silvestre).

BRATISLAVA

1,076 kc/s, 279 metres; 11 kW.—**5.10 p.m.,** see **Prague. 5.50,** Reading. **6.0,** Talk on Witches. **6.15,** see **Prague. 6.30,** German Transmission: Talk on Motoring, followed by a Medical Talk. **7.0,** see **Prague. 10.15,** Light Music on Gramophone Records. **11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—1.15 p.m.,** Concert by the Small Silesian Philharmonic Orchestra, conducted by Hermann Behr. **1.45,** Time, Weather, News, and Exchange. **2.5,** Gramophone Concert. **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.35,** Talk: A Ramble over the Battlefields of Leuthene. **3.50,** Book Review. **4.10,** Orchestral Concert, conducted by Bruno Janz: Selection from Il Trovatore (Verdi); Overture, Hans Heiling (Marschner); Behüt dich Gott, from Der Trompeter von Säkkingen (Nessler); Selection from The Merry Widow (Lehar); March, Frühjahrsparade (Schicke). **5.0,** Programme for Children. **5.30,** Agricultural Prices. **5.35** (approx.), Recital of Music by Frederick the Great, by Hermann Zanke (Flute) and Kurt Hattwig (Harpsichord); Introductory Talk by Hermann Zanke. **6.0,** Talk for Workers. **6.20,** Programme to be announced. **6.35,** Orchestral Concert, conducted by Bruno Janz: Serenade from the String Quartet, Op. 3, No. 5 (Haydn); Minuet in G (Beethoven); Intermezzo No. 2 in B Flat (Gal); Einsame Feldwacht (Graener) Sérénade pittoresque (Graener). **6.50,** News. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Humorous Programme. **8.30,** Concert by the Silesian Philharmonic Orchestra, conducted by Georg Schumann; Soloist: G. Schumann (Pianoforte): Variations and Fugue on a Theme by Bach (G. Schumann); Pianoforte Concerto in A (Mozart); Humoresque in the Form of Variations on Gestern Abend war Vetter Michel da (G. Schumann). **10.10,** Time, Weather, News, Sports Notes, and Programme Announcements. **10.40,** Talk on Birds. **11.0** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by B. Bakala: Overture (Pek); Suite, Op. 3 (Janaceck); Slav Dances, Nos. 9 and 16 (Dvorák); Slav Dance (Tchaikovsky); Le Cygne (Saint-Saëns); Moment musical (Schubert); Scherzo (Schubert). **5.10,** News for Young People. **5.50,** Educational Talk; **6.0,** Literary Review. **6.15,** See **Prague. 6.25,** German Transmission: News, followed by Christian Günther: Radio Play (K. Krieseler). **7.0,** see **Prague. 10.15,** Light Music on Gramophone Records. **11.0** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Concert by the Little Radio Orchestra conducted by Lemans: Paso doble, From Seville to Triana (Lucchesi); Overture, Die Frau Meisterin (Suppé); Melody, Pensée d'automne (Hruby); Potpourri, Ein Rendezvous bei Lehar (Hruby); Pianoforte Solo: Waltz (Moszkovsky); Air from Louise (Charpentier); Conte musical radiophonique (Wetzel-José); Selection from Nina Rosa (Romberg). **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert: March, Italian Retreat (Drescher); O catina (Andréany); Les gendarmes à pied (Bach and Laverne); Pastiches musicaux (Betove); My Brother makes the Noises for the Talkies (Amberg); Chez le pédicure (Bach and Laverne); Un mois de vacances (Mireille); L'aubade manquée (Noël); March, The Washington Post (Sousa); Grock in his Musical Hall Sketch; Liberty March (Latann). **5.0,** Concert of Waltzes by the Radio Orchestra, conducted by M. Charles Walpot: La Madriparivienne (Tellam); Sourire d'avril (Depret); Gold and Silver (Lehar); Nuit d'été (Weyts); Dolores (Waldteufel). **5.30,** Programme for Children. **6.0,** Talk: How can they live? **6.15,** Gramophone Concert: March, The Liberty Bell (Sousa); Waltz (Fetras); Ah! vous dirais-je, maman? (Adam); Hungarian Air (arr. Racz); Intermezzo (Lindsay-Theimer); Egyptian Serenade, Amina (Lincke); La channière en fête (Defrance); Andante religioso (Lang); L'anneau d'argent (Chaminade); Gipsy Caprice (Racz); Duet for Two Cornets: A qui mieux mieux (Pillevestre); Fantasia, Am Lagerfeuer (Siede); Song in Dialect, L'avez-ve veyon passer?: Le baptême des z'osiaux (Bach and Laverne); Popular Song, La bière (Clesse); Serenade, Ma blonde amie (Carcel); Romance (Jacobs); Paso doble, Argentina (Allan). **7.15,** Review for Workers. **7.30,** Wireless Review. **8.0,** Concert by the Radio Symphony Orchestra, conducted by M. Meulemans: March, Pomp and Circumstance (Elgar); Overture, The Barber of Seville (Rossini); Two Pieces (Albéniz): (a) Cadiz, (b) Granada; Divertissement on Russian Airs (Rabaud); Habanera (Maes); Slav Dances (Dvorák). **8.45,** Talk. **9.0,** Concert by the Radio Orchestra, conducted by M. Charles Walpot: Overture, La dame blanche (Boieldieu); Selection from Véronique (Messager); Two Pieces (Ganne): (a) Persian Dance, (b) Egyptian Dance; Pastorale for Five Wind Instruments (Pierné); Intermède; Rondo capriccioso for Violin and Orchestra (Saint-Saëns); Suite, En vacances (René-Baxton). **10.0,** Le Journal Parlé. **10.10,** Gramophone Concert: Part I: Light Music; Part II: Classical Music: Partita in E (Bach); Moto perpetuo (Mozart); Baba Yaga (Liadov); Menuet antique (Ravel); The Moldau (Smetana).

BRUSSELS (No. 2)

(N.I.R.), 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**12 Noon,** Sacred Music on Gramophone Records: Etude de cantique (Sittard); Domine deus (C. Franck); Ave Maria (Schubert); Jerusalem (Mendelssohn); Alleluia (Handel). **12.20 p.m.,** Gramophone Concert: Kikimora (Liadov); Melody from The Land of Smiles (Lehar); Two Recitations; Invitation to the Waltz (Weber); Two Recitations; Melody from The Land of Smiles (Lehar); Selection from Aida (Verdi). **1.0,** Le Journal Parlé. **1.10,** Concert by the Small Orchestra, conducted by P. Leemans: Overture, Les Deux Journées (Cherubini); Barcarolle (Albeniz); Torre Bermeja (Albeniz); Pantin napolitain (d'Indy); Three Waltzes for Pianoforte (Van Hoof); Marche funèbre d'un hameton (Dubois); Waltz, Hofballtänze (Lanner). **5.0,** Liszt Concert by the Symphony Orchestra, conducted by A. Meulemans: Les Préludes; Hungarian Rhapsody, No. 2, Christus vincit; Hungarian Rhapsody, No. 14. **5.45,** Hungarian Children's Programme. **6.30,** Programme for Young People. **7.12,** Announcements. **7.15,** Talk: The Peace Movement in Flanders. **7.35,** Talk for Women. **8.0,** Concert by the Radio Orchestra, conducted by Charles Walpot: Radetzky March (Strauss); Overture, Le Carnaval romain (Berlioz); Symphonic Suite, La Féria (Lacôme); Campana a sera (Billi); Waltz, La madriparivienne (Tellam). **8.45,** Talk: A Visit to the Vatican. **9.0,** Wagner Concert by the Symphony Orchestra, conducted by A. Meulemans: Soloist: J. Sterkens (Songs): Prelude to Act 3 of Lohengrin; Two Songs from Lohengrin; Forest Murmurs; Cavatina from Act 2 of The Flying Dutchman; Overture, The Flying Dutchman. **9.55,** Evening Prayer. **10.0,** Le Journal Parlé. **10.10,** Extracts from Il Trovatore—Opera (Verdi), on Gramophone Records by the Soloists, Choir and Orchestra of the Scala, Milan.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Light Music and Rumanian Music by the Dinico Orchestra. **6.0,** Radio Journal. **6.15,** Concert by the Dinico Orchestra (contd.). **7.0,** Educational Talks. **7.55,** Time Signal. **8.0,** Song Recital by Mme. Lia Popovici-Vergu. **8.20,** Symphony Concert, conducted by T. Rogalsky: Suite, The Children's Corner (Debussy-Caplet); Concerto in C Minor for Pianoforte and Orchestra (Rachmaninoff); Symphonietta for Pianoforte and Orchestra (Tansmann). **9.0** (in an interval), Talk. **10.0,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **8.0 p.m.** till Close Down.—**5.30 p.m.,** Gramophone Records of Variety Music. **6.30,** English Lesson. **7.0,** Pianoforte Recital by Johann Baranyi: Andante with variations (Haydn); Nocturne in F Sharp (Chopin); Mazurka in C Sharp Minor (Chopin); Waltz in A Flat (Chopin); St. François d'Assise (Liszt); Polonaise in F (Liszt). **7.30,** Programme for Workers. **8.0,** Gala Concert by the Budapest Concert Orchestra, conducted by Georg Szell, relayed from the Academy of Music. **10.0,** News, followed by Concert by the Bela Racz Cigany Band.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW. —**12 Noon,** Time and Chimes from the Town Hall. **12.2 p.m.,** String Ensemble Concert, relayed from the Hotel d'Angleterre. **2.0 to 3.0,** Interval. **3.0,** Reading. **3.20,** Orchestral Concert, relayed from the Wivex Restaurant. **5.0 to 5.40,** Interval. **5.40,** Exchange and Fish Market Prices. **5.50,** Talk: From Mesmerism to Hypnotism. **6.20,** English Lesson. **6.50,** Weather Forecast. **7.0,** News. **7.15,** Time Signal. **7.16,** Talk. **7.45,** Danish Lesson. **8.10,** Twenty-Eighth Concert from the State Broadcasting Building: The Station Symphony Orchestra, conducted by Hans Weisbach; Soloist: Poldi Mildner (Pianoforte): Symphony No. 6 in F (The Pastoral) (Beethoven); Pianoforte Concerto No. 1 in E Flat (Liszt); Ten Minutes Interval; La cella azzurra (Rocca); Pian-

forte Solo; Burlesque (R. Strauss); Homage March (Wagner). **10.15,** News. **10.30,** Readings. **10.50,** Dance Music, relayed from the National Seats. In the interval at **12 Midnight,** Time and Chimes from the Town Hall. **12.30 a.m. (Friday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,327 kc/s, 223 metres; 10 kW.—**12 Noon,** Popular Music on Gramophone Records. **12.30 p.m.,** News. **12.45,** Programme for Children. **5.30 to 7.0,** Programme in English by the I.B.C. Announcers: C. Danvers-Walker, B. McNabb, and F. Lamping. **5.30,** Tango Band Concert for Worthing and Littlehampton Listeners: Il canto dell' attesa (Bixio); Marion (Hollander); Farewell (Buday); Songs: (a) Gipsy Melody, (b) Cuban Love Song; I kiss your Little Hand; Madame (Erwin); Te fuiste ja ja; Adios Argentina; Songs: (a) Lolita (Buzzi-Peccia), (b) Song of Love; La Paloma (Yradier); Tesoro Mio (Becucci). **6.15,** Concert of Light Music for Brighton and Hove Listeners: Waltz, Wiener Blut (Joh. Strauss); Barcarolle (Waldteufel); Xylophone Solo, Fairy Tiptoe (Fredericks); Pale Volga Moon (O'Hagen); Songs: (a) I wish I knew a Bigger Word than Love (Pola), (b) Have you ever been lonely? (Brown); Xylophone Solo, Snappy Sticks (Robbins); Gipsy Moon (Borganov); Songs: (a) Horses carry Tails (Redmond), (b) Thompson's Old Grey Mule (Pickard); Sans Soucі (Blon); Loin du bal (Gillet). **7.0,** Radio Gazette. **7.20,** Local News. **7.30,** Light Music on Gramophone Records. **7.45,** The Listeners' Half Hour, and News. **8.30,** Talk and Literary Review. **8.45,** Dance Music by the René Cloarec Jazz Band, relayed from **Rouen. 10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music by the Hecolians: I wanna sing about you; Little Girl; Ragamuffin Romeo; Three Little Words; The longer that you linger in Virginia; Go Home and tell your Mother; Who am I?; Wabash Moon; In a little Rendezvous; The Match Parade; Two little Blue little Eyes; Say a little Prayer for me; Dancing with the Devil; When the Moon comes over the Mountain; Down Sunnyside Lane. **11.0,** Organ Recital: Turkish Patrol (Michaelis); There's Something about a Soldier (Gay); Lola (Arndt); Butterflies in the Rain (Myers); There's Nothing New in Love (Maclean); Bells across the Meadow (Ketelbey); The Butterfly Waltz Song (Ralton); Spirit of America (Zamecnik). **11.30,** Opera Music: One Fine Day, from Madame Butterfly (Puccini); Questa O Quella, from Rigoletto (Verci); Walter's Song, from The Mastersinger's (Wagner); Waltz Song, from La Bohème (Puccini); Flower Song from Carmen (Bizet); Ave Maria, from Cavaleria rusticana (Mascagni); Selection from Tannhäuser (Wagner). **12 Midnight,** Club Concert for Shetland Listeners: The Bonnie Briar Bush; Green Grow the Rushes O (Traditional); When the Kye comes hame (Traditional); Hands across the Sea; Selection from The Bohemian Girl (Balfe); Concertina Solo, Bonnie Lass o' bon accord (Skinner); Commander of the Legion; Quartet; Lassie Mine; Violin Solo, Selection of Scottish Ballads; Selection from The Quaker Girl (Monckton); Concertina Solo, The Road to the Isles (Kennedy-Fraser); Thunder and Blazes. **1.0,** Accordion Band Music: Seven Pounds of Heaven; Potpourri of Popular Tunes; Lullaby of the Leaves; After the Ball; Selection from Congress Dances (Heymann); Yip-I-addy-I-ay. **1.30,** Songs: When I met Sally at the Seaside (Tilsey); I miss a little Missy (Coots); You used to be my Sweetheart (Towers); Pianoforte Solo, Whoopee Medley (Kahn); Going, going, gone (Evans); You don't have to tell me (Donaldson); They all make Love but me (Donaldson); Pianoforte Solo, Monte Carlo Medley (Robin). **2.0,** Dance Music by the Hecolians. Leave the pretty Girls alone; Little Nell; Thompson's Old Grey Mule; Bananas; The World is so Small; Let's all Sing like the Birdies sing; Mediterranean Madness; How deep is the Ocean? You'll always be the same Sweetheart; Just because you're you; Pulcese, Mr. Hemmingway; I'm sure of everything but you; I guess I'll have to change my Plan; Just a little Home for the Old Folks. **2.57,** I.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres.**—**4.30 p.m.,** Concert from the Kurhaus, Wiesbaden: Overture, Fidelio (Beethoven); Largo (Handel); In the Steppes of Central Asia (Borodin); Three Symphonic Dances (Grieg); Waltz from Der Rosenkavalier (R. Strauss); Symphonic Poem: Die Moldau (Smetana). **5.50,** Economic Notes. **6.0,** Talk: The Alsace Lorraine Institute. **6.25,** Talk: The Evolution of the Large Town, in the Past and the Future. **5.50,** Time, Programme Announcements, and Weather. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Gala Concert in connection with the Alsace Lorraine Meeting in Frankfurt; The Station Orchestra, conducted by Hans Rosbaud; Soloist: Jean Stern (Baritone): Overture, Euryanthe (Weber); Aria from Euryanthe (Weber); Symphony No. 3 in E Flat (the Rhenish), Op. 97 (Schumann); Dietrich's Narrative from Der arme Heinrich (Pfitzner); Scherzo (Pfitzner); Two Monologues from The Mastersingers (Wagner); Prelude to The Mastersingers (Wagner). **9.45,** Topical Report: The People of the Frontierlands (arranged Paul Laven). **10.15,** Time, News, Weather, and Sports Notes.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

805 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—**5.55 p.m.,** Book Review. **6.20,** Talk: Girls' High Schools in Hamburg. **6.45,** Exchange. **6.50,** Weather. **7.0,** Transmission for all German Stations relayed from **Langenberg. 8.0,** Literary and Musical Programme by the Society of German Culture. Introductory Address: First Movement from the Symphony in B Minor (Schubert); Poetry Reading; Overture. Käthchen von Heilbronn (Pfitzner); Recitation: Geistige Freiheit (Wulf Bley); Epilogue. **9.0,** Hans Bullerian Concert, conducted by Horst Platen. Soloist: Adolf Steiner (Cello): Alte Musiken; Cello Concerto in One Movement; Sinfonietta. **10.0,** Time, Weather, Announcements, Sports, and Police Notes. **10.20,** Topical Programme. **10.39,** Concert of Dance Music by the Station Chamber Orchestra, conducted by Gerhard Maass.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.**—**1.5 p.m.,** Gramophone Concert: Selection from Carmen (Bizet); Huldigungsmarsch (Wagner); Les sons et les parfums tournent dans l'air du soir (Debussy); Vergangene Träume (Krier); Japanese Mazurka (Gamne); Neapolitan Nights (Zamecnik); First Movement from the Symphony in G (Mozart); Overture in D from the Suite No. 3 (Bach); Cavatina (Raff); Ballad, Der seltene Beter (Loewe); Russian Folk Melodies (Geiger); Slav March (Tchaikovsky). In the interval at **1.20,** News. **2.30 (Danzig),** Exchange and Market Prices. **3.0,** Market Prices. **3.30,** Puss in Boots—A Radio Play in Verse (Carl Meissner). **4.0** (from **Danzig**), Talk for Young People: My Impressions of the Spaniards. **4.30,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken. Overture, Der Vampyr (Marschner); Fantasia on Music by Keler Bela (Rhode); Waltz, Gold and Silver (Lehár); Two Pieces (Schumann): (a) Träumerei, (b) Abendlied; Lied aus Wien (Schubert); Bridal Chorus from Lohengrin (Wagner). **5.50,** Review of Periodicals. **6.15,** Agricultural Market Prices. **6.25,** Agricultural Talk. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** News Bulletin. **8.5,** Concert by the Königsberg Opera House Orchestra, conducted by Ludwig Leschetizky. Soloists: Elfriede Beyer (Soprano) and Annemarie Schöning (Contralto). In the interval at **9.0** (approx.). News. **9.45,** Elementary English Lesson. **10.15,** Weather, News, and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—**11.10 a.m.,** Song Recital by Edith Waldem and Chris Veelo: Capriccio (Scarlatti); Choral Prelude (Franck); Come raggio di sol (Caldara); La Violetta (Scarlatti); Arias (Mozart) from (a) Idomeneo, (b) Figaro; Frühlingslied (Schubert); Concert Etude (Blumenfeld); Der Jongleur (Tuch); Melody (Rachmaninov); Humoresque (Rachmaninov); Als de Ziele luistert (Rennes); Cradle Song (Rennes); Old Song (Wildschut); Prayer (Berghout); The King of Avignon (Gravlez); Melody (Gravlez). **12.40 p.m.,** Time. **12.41,** Popular Music on Gramophone Records. **1.10,** Instrumental Concert: Pierre Palla (Organ). Arnold Stanowsky (Songs and Violin). **2.40,** Talk on Water Plants. **3.10,** Interval. **3.25,** Popular Music on Gramophone Records. **3.40,** Dressmaking Lesson. **4.25,** Light Music on Gramophone Records. **4.40,** Talk for Hospitals. **5.10,** Pianoforte Recital by Egbert Veen: Invention in F (Bach); Prelude and Fugue in B Flat (Bach); Sonata, Op. 10, No. 2 (Beethoven); Impromptu in A Flat (Chopin); Prelude in D Flat (Chopin); Seguidillas (Albéniz). **5.40,** Programme for Children. **6.10,** Concert by the Wireless Orchestra, conducted by Nico Treep: Overture, Das Modell (Suppé); Scaramouche (Thomé); Sous la feuillé (Thomé); Waltz, Lotosblumen (Ohlsen); Selection from Lucia di Lammermoor (Donizetti); Parade of Jack and Jill (Lake); Türkische Schauwache (Michaelis); Strausfedern (Morena); San Sebastian (Dufort); March, The Derby Winner (Pecking); Selection from The Mikado (Sullivan); Waiting (Ancliffe); The Beefeater (Arpthorp). **8.5,** Interval. **8.10,** English Lesson. **8.40,** Time and News. **8.45,** Appeal on Behalf of the National Crisis Committee by the Lord Mayor of Amsterdam. **9.55,** Song Recital, Tv.d. Sluys (Soprano), Annie Wond (Contralto), Marcus Plooyer (Tenor), and Hendrik Koning (Bass). **10.20,** Brahms Concert by the Concertgebouw Orchestra, relayed from the Concertgebouw, Amsterdam: Conductor, Willem Mengelberg; Soloist, Carl Flesch (Violin). **11.10,** Popular Music on Gramophone Records. **11.40,** News. **11.50,** Dance Music. **12.40** (approx.), **(Friday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**11.40 a.m. to 2.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). **11.40,** Popular Music on Gramophone Records. **12.10 p.m.,** Religious Address. **12.40,** Police Report. **12.55,** Concert by the K.R.O. Orchestra, conducted by J. Gerritsen: Soldiers' Parade (Grit); Overture, The Bohemian Girl (Balfe); Waltz, Wiener Praterleben (Translateur); Selection from Faust (Gounod); Der alte Brunnbär (Fucik); Gramophone Records; Overture, Lysistrata (Lincke); Grossmütterchen (Lange); Potpourri, In the Seventh Heaven (Fetras); Selection from Polenblut (Nedbal). **2.40** till Close Down, Programme of the Christian Radio Society (N.C.R.V.). **2.40,** Lesson on Handicrafts. **3.40,** Talk for Women. **4.10,** Interval. **4.40,** Bible Reading, followed by Song and Organ Recital. **5.40,** Organ Recital. **6.25,** Handwork Lesson for Young People. **6.55,** Talk. **7.25,** Dressmaking Lesson. **7.40,** Press Review. **8.10,** Police Notes. **8.25,** Temperance Talk. **8.40,** Met God en Oranje—Oratorio (de Wolf), relayed from **Leyden.** The Ex Animo Church Choir and Children's Choir, and the Rotterdam Philharmonic Orchestra and Soloists. Conductor: The Composer. In the interval, Talk. **11.25,** News. **11.30,** Popular Music on Gramophone Records. **12.10 a.m. (Friday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—**8.0 p.m.,** Entertainments Guide, News Bulletin, and Financial Notes. **8.10,** Scientific Talk. **8.30,** Radio Concert. **9.0,** Weather, Racing Results, and News. **9.15,** Radio Concert. **12 Midnight to 1.0 a.m. (Friday),** Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight,** Vocal and Orchestral Concert: Berceuse (German); Songs: (a) The English Rose (German), (b) Carry me back to Old Virginny, (c) Leeds owd Church (Traditional), (d) The Keys of Heaven (Traditional), (e) I attempt from Love's Sickness to fly (Purcell), (f) Way down yonder in the Cornfield; Shepherd's Dance from Henry VIII (German). **12.30 a.m.,** Dance Music: I may never pass your way again; A Boy and Girl were dancing; What more can I ask?; Brighter than the Sun; Open up dem Pearly Gates; In the Jailhouse now; Dick Turpin's Ride to York. **12.57,** I.B.C. Good-night Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12.50 p.m.,** Weather, Time, and News. **1.0,** Concert conducted by Wolf; Soloist: Lissy Bruckwilder-Soltes (Songs): March, Einzug der Hellebardiere (Blankenburg); Waltz, Simbibl (Lincke); Songs (R. Strauss): (a) Freundliche Vision, (b) Ruhe, meine Seele, (c) Georgine Overture, Aufruhr in Dublen (Stierlin); On the Black Sea (Dvorak); A Dance (Dvorak); Fantasia, Musikalische Unterhaltung bei Liszt (Prebach); Serenade, Es flüstert die Liebe (Lindemann); Diavoletta (Lindemann); Suite from Esmeralda (Drigo): In the Harbour of Port Said (Armandola); Selection from Boccaccio (Suppé). In the interval at **2.0,** News. **2.30 to 3.0,** Interval. **3.0,** Handwork for Children. **3.30,** Economic Notes and Time. **3.50,** Educational Talk. **4.20,** Notes on the Broadcasts for Schools. **4.30,** Concert conducted by Eysoldt: Beethoven Overture (Lassen); Rhapsody No. 1 in B Minor (Brahms); Sea Piere (MacDowell); Selection from The Queen of Spades (Tchaikovsky); Waltz from Serenade No. 2 (Volkmann); Indian Suite (Lüling). **5.45,** Talk: Modern Family Life in England and America. **6.5,** The World on Gramophone Records—Catarro. **6.30,** Talk: The Prospects of Germany's Recovery. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Cologne:** Spring on the Rhine—Radio Sequence (Willi Schäferdiek). **8.0,** News. **8.5,** Concert conducted by Wolf: Overture, The Golden Cross (Brüll); Two Norwegian Dances (Grieg); Kinderlieder-Suite (Blech); Wedding Music (Jensen); Lagunen-Walzer (Strauss). **8.40,** Jobsiade. **10.5,** News and Sports Notes. **10.30,** Serenade and Dance Music conducted by Eysoldt. **12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

759.9 kc/s, 389.6 metres; 120 kW; and **Dresden, 941 kc/s, 319 metres.**—**1.15 p.m.,** Gramophone Concert of Instrumental Music, followed by Exchange Quotations. **2.0,** Film Report. **3.0,** Talk for Young People: Physical Castles in the Air. **3.35,** Market Prices. **4.0,** Concert by the Meissen Municipal and Theatre Orchestra, conducted by Steinbach. **5.30,** Weather and Time. **5.35,** Talk for Taxpayers. **5.50,** Market Prices. **6.0,** Talk: The Causes and Prevention of Blindness. **6.25,** Old Japanese Music on Gramophone Records. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Topical Talk. **8.15,** Folk Music by the Sinfonie Mandoline and Guitar Society. Conductors: Max Schwarze, Hermann Shaat and Paul Frey. **9.15** News Bulletin. **9.25,** Bauer naterm Hammer—a Play (Hans Christoph Kaergel). **10.25,** News and Close Down.

LINZ.—See **Vienna.**

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** See **Madrid (Union Radio). 1.0 a.m. (Friday),** Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Topical Review and Programme for Children. **9.15,** News and Political Review. **9.30 to 10.0,** Interval. **10.0,** English Lesson by the Linguaphone Method. **10.30,** Chimes, Time Signal, Political Review and Scientific Talk, followed by Pianoforte Recital by Maruja Gonzalez and Fernando Emher, and Song Recital by Augusto Ordoñez (Baritone). **12.45 a.m. (Friday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,367 kc/s, 263.8 metres; 11 kW.—**5.50 p.m.,** Chopin Pianoforte Recital: Nocturne, Op. 27, No. 2; Scherzo in B Flat Minor. **6.15,** Fashion Review. **6.30,** Song Recital. **6.55,** News. **7.0,** See **Prague. 7.10,** Technical Notes. **7.25,** See **Prague. 10.15,** Concert by the Mózsi Cigány Band. **11.0** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**8.0 p.m.,** Review of the Week and Answers to Correspondents in German. **9.0,** Review of the Week and Answers to Correspondents in French. **10.5,** Programme in Swedish: May 1st—Radio Play.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres,** and **Nürnberg, 1,256 kc/s, 239 metres.**—**3.25 p.m.,** Song Recital by Helma Banke (Soprano) and Erich Müller-Ahrenberg (Baritone). Soprano Solos (Schröder), with the Composer at the Pianoforte: (a) Die geheimnisvolle Flöte, (b) Es werde Licht, (c) Hymnen an das Meer, (d) Gottes Wunder, (e) Ein junger Dichter denkt an die Geliebte, (f) Frühlingsjubel; Six Songs for Baritone: (a) Seliger Eingang (Max von Schillings), (b) Freude soll in deinen Werken sein (Max von Schillings), (c) Frühlingshymne (Franckenstein), (d) Nachts (Pfitzner), (e) Wie Frühlingsahnung weht es durch die Lande (Pfitzner). **3.55,** Weather and Agricultural Notes. **4.10,** Talk by Hugo Erdmann. **4.30** (from **Augsburg**), Orchestral Concert. **5.45,** Talk on the Hundred and Fiftieth Anniversary of the German Theatre in Prague. **6.5,** Sports Report. **6.25,** Agricultural Talk. **6.45,** Time, Weather and Agricultural Notes. **7.0,** Transmission for all German Stations—relayed from **Langenberg. 8.0,** Talk on the following transmission. **8.5** (from **Augsburg**), An Opera Relay. **10.20,** The Taxpayer's Calendar.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 816 kc/s, 368.8 metres; Hamar, 536 kc/s, 522 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**5.0 p.m.,** Concert relayed from the Grand Hotel: Overture, Carnival (Dvorak); Waltz, Die Romantiker (Lanner); Selection from The Czarevitch (Lehar); Norwegian Dance

No. 3 (Grieg); Prelude (Rachmaninov); Foxtrot, Love me To-night (Rodgers). 6.0, German Lesson. 6.30, Studio Service. 7.0, Announcements, Weather and News. 7.30, 'Cello Recital by Hans Balchen: Sonata (Eccles); Sicilienne (Baradies-Dushkin); Etude—Caprice (Goltermann); Romance (Jeral); Clair de lune (Massenet). 8.0, Time. 8.1, Agricultural Talk. 8.30, A Play. 9.20, Sponsored Concert. 9.40, Weather and News. 10.0, Topical Talk. 10.15, Relay of European Stations.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 542 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Notes, Agricultural Talk, and Giornale Radio. **8.20,** Popular Music on Gramophone Records. In an interval at **8.30,** Time and Announcements. **8.45,** Orchestral and Vocal Concert of Variety Music. In the interval, A Comedy. **10.55,** News.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**6.45 p.m.,** Theatre Review. **7.0,** Le Journal Parlé. **8.20,** Weather Forecast. **8.30,** Gramophone Concert; Part I: Music by Liszt and Wagner; Part II: Variety Music. **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Programme for Children. **7.30,** Light Music on Gramophone Records. **8.0,** Agricultural Talk. **8.15,** Interval. **8.30,** Talk on Fashions. **8.35,** Light Music on Gramophone Records. **8.45,** Interval. **9.0,** Variety Programme by the Station Orchestra, the Billy Arnold Jazz Band, the Marvel Vocal Trio, and Soloists.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Protestant Address. **12.30 p.m.,** Orchestral Concert of Modern Operetta and Sound Film Music. Selection from Le comte obbligado (Moretti); Melodies from Sidonie Panache (Szule); Melodies from Enlèvez-moi (Gabaroche); C'est comme ça (Moretti); Melody from Une petite femme dans le train (Romans et Gregson); Two Songs from Kadubec (Yvain); Three Movements from the Suite in a Minor Key (Gabriel Marie); Divertissement longrois (Michiels). In the interval at **1.0,** Exchange, News and Weather, and at **1.30,** Exchange. **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.30,** Gramophone Music: Czech Pieces; Gipsy Song (Dvorák). **6.45,** Talk: The Legal Position of Married Women. **7.0,** Talk on French Poetry: The Classic Symbolism of Samain, Paul Fort and Others. **7.20,** Orchestral Concert: Au Printemps de la Vie (Mouton); Suite pour mes petites amies (Pierné); Two Waltzes (Dvorák). **7.45,** Review of the German Press. **8.0,** Symphony Concert by the Radio Paris Orchestra, conducted by M. Eugene Bigot. Soloist: Lucienne Radisse ('Cello). Academic Festival Overture (Brahms); Concerto for Violin, 'Cello and Orchestra (Lalo); Petite Suite (Ducasse); Symphonic Poem, Stadion (Konstantinov); Symphony (Chausson). In the interval at **8.30,** News and Weather and Sports Notes; at **8.40,** Review by Dominique Bonnaud, and at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**10.0 p.m.,** Work-a-day Thoughts. **10.5,** Business News. **10.15,** Programme to be announced. **10.30,** Weather Report. **10.32,** Market Reports. **10.45,** Programme to be announced. **10.57,** David Lawrence Dispatch. **11.0,** Programme to be announced. **11.15,** Dick Daring, from **New York.** **11.30,** Singing Lady, from **New York.** **11.45,** Little Orphan Annie. **12 Midnight,** Our Daily Food—George Rector's Cooking School, from **New York.** **12.15 a.m. (Friday),** Time Signal. **12.16,** Weather Report. **12.17,** Teaberry Sport Review. **12.22,** Press News Reeler. **12.29,** Temperature Report. **12.30,** Programme to be announced. **12.45,** To-day's News by Lowell Thomas, from **New York.** **1.0,** Pepsodent Amos 'n' Andy, from **New York.** **1.15,** Concert Footlights. **1.45,** The Townsend Murder Mystery. **2.0 to 5.1, New York** Relay. **2.0,** Captain Diamond's Adventures. **2.30,** Time Signal and Rin Tin Tin Thrillers. **2.45,** Thurston, the Magician. **3.0,** Death Valley Days. **3.30,** Wayne King's Orchestra, with Lady Esther. **4.0,** Green Brothers' Novelties. **4.15,** Vic and Sade. **4.30,** Radio City Variety Programme. **5.1,** Teaberry Sport Review. **5.11,** Temperature Report. **5.12,** Weather Report. **5.13,** KDKA Artist Bulletin. **5.15,** Press Last Minute News Flashes. **5.20,** Bertha Schmid (Soprano). **5.30,** Jack Pettis and his Orchestra. **5.58,** KDKA Artist Bulletin. **6.0,** Hotel McAlpin Orchestra, from **New York.** **6.30,** Time Signal and Good-night.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** See **Brno.** **5.10,** Talk on Economics. **5.20,** Talk for Workers. **6.0,** Gramophone Records. **6.15,** Talk for Workers: An Author's Conception of the Poor. **6.25,** News in German. **6.30,** German Transmission: Talk on Hop-growing. **7.0,** Chimes. **7.1,** News Bulletin. **7.10,** English Conversation. **7.25,** Talk on the following Transmission. **8.0,** Serenade in E Flat for Strings (Suk) by the Station Orchestra, conducted by Parik. **8.30,** Scenes from the Life of Famous Prague Singers of the Eighties. **9.0** (in the interval), Time Signal. **9.30,** String Quartet in F, Op. 113 (Bendl). **10.0,** Time Signal. **10.1,** News Bulletin. **10.15,** Variety Music on Gramophone Records. **11.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres, 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.**—**6.0 p.m.** (from **Lausanne**), Talk on Sport. **6.20** (from **Geneva**), Talk in Esperanto. **6.35** (from **Lausanne**), Italian Lesson. **7.0** (from **Geneva**), Weather and News. **7.20** (from **Lausanne**), Answers to Correspondents. **7.30** (from **Geneva**), Talk on Graphology. **8.0** (from **Geneva**), Programme by Artistes of the Comedy Theatre. **8.25** (from **Geneva**), Concert of Chamber Music by the Pro Nova Group: Three Etudes for Pianoforte (Debussy); Sonatina for 'Cellos (Konrad Beck). **9.5,** Concert by the Radio Suisse Romande Orchestra. **10.0** News and Weather. **10.10** (from **Geneva**), Talk: The Work of the League of Nations. **10.30** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 630 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres,** and **2RO, 11,810 kc/s, 25.4 metres.**—**1.0 p.m.,** Five Minutes' Humour. **1.5 to 2.15,** Orchestral Concert. In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Programme for Children. **5.10,** Announcements. **5.15,** Exchange and Giornale Radio. **5.30 to 6.15,** Vocal and Instrumental Concert. Pianoforte Solos: (a) Toccata (Scarlatti), (b) Waldesrauschen (Liszt). Soprano Solos: (a) Aria from Fedora (Giordano), (b) Aria from the First Act of Lorelei (Cantalani). Spanish Songs for Tenor. Pianoforte Solos: (a) Waltz, Alt-Wien (Castelnuovo-Tedesco), (b) March from The Love for the Three Oranges (Prokofiev). Soprano Solos: (a) Aria from Ernani (Verdi), (b) Aria from Adia (Verdi). **7.0, (Naples)** Shipping and Sports Notes. **7.10,** Agricultural and Dopolavoro Notes. **7.20,** Giornale Radio and Gramophone Records of Popular Music. **8.0,** Time and Amusements. **8.2,** Talk. **8.15,** Gramophone Records (contd.). **8.36,** Sports Notes and Tourist Report. **8.45,** Symphony Concert, conducted by Fritz Reiner. Chaconne (Bach, arranged for Orchestra by Hubay); Eight German Dances (Mozart); Suite Adriatica (Lualdi); Talk on Literature and Le Tombeau de Couperin (Ravel); Symphonic Poem, Till Eulenspiegel (R. Strauss). News after the Programme.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** and by **W2XAD** (See Short-Wave List).—**1.0 a.m. (Friday),** Southern Jubilee Quartet. **1.15,** Stock Reports. **1.30 to 4.0, New York** Relay. **1.30,** Donald Novis (Tenor). **1.45,** The Goldbergs—Comedy Sketch. **2.0,** Fleischmann Hour. **3.0,** Capt. Henry's Show Boat. **4.0,** Lucky Strike Hour, from **New York,** followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**12.28 p.m.,** Time Signal from Neuchâtel Observatory. **12.30,** Weather and News. **12.40** (from **Basle**), Concert of Spring Music and Popular Melodies, with Connecting Verses by Karl Thomas. **1.35,** Weather and Exchange. **1.40 to 3.30,** Interval. **3.30 to 5.30,** Programme from **Berne.** **3.30,** Programme for Women. **4.0,** Concert of Light Music on Gramophone Records. **5.0,** Chamber Music on Gramophone Records. **5.30,** Weather Report. **5.35 to 6.30,** Interval. **6.30** (from **Basle**), Talk: Tales of Witches and Ghosts from Old Basle. **7.0,** Time, Weather, and Traffic Report. **7.15 to 9.30,** Programme from **Basle.** **7.15,** Elementary Italian Lesson. **8.0,** Recital of Old Music for Viola da Gamba and Spinet. **8.50,** For ever and ever, Amen—a Legal Sketch (Anton Wildgans). **9.30,** Weather and News. **9.40,** Concert by the Radio Orchestra. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Horby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**5.5 p.m.** (from **Ostersund**), Studio Service. **5.30,** Programme for Children. **5.45,** Light Music on Gramophone Records. **6.45,** Elementary English Lesson, relayed from **Jönköping, 1,490 kc/s, 201.2 metres.** **7.30,** Talk. **8.0,** Orchestral Concert; Soloist, Marcel Ciampi (Pianoforte): Concert Overture, The Hebrides (Mendelssohn); Concerto No. 3 in C Minor for Pianoforte and Orchestra (Beethoven); Bohemian Folk Melodies and Dances (Weinberger); Suite for Pianoforte, Children's Corner (Debussy). **9.15,** Cabaret Programme. **9.45,** Weather and News. **10.0,** Choral Concert, conducted by Hildor Lundvik. In an interval, Reading. **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Gramophone Concert of Variety Music. **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Orchestral Concert, conducted by Maurice de Villers. Overture, Les dragons de Villars (Maillart); Waltz, Myosothis (Waldteufel); Selection from Si j'étais roi (Adam); Russian Rhapsody (Gretchaninov); Ballet egyptien (Luigini); A Wedding Day on Troldhaugen (Grieg). **2.0,** Programme for Children. **3.0 to 4.15,** Interval. **4.15,** French Elocution Lesson. **4.30,** Programme for Children, relayed from **Bordeaux-Lafayette.** **6.0,** Talk in German: French Art in the Renaissance. **6.15,** Talk for Women. **6.30,** Jazz Music, conducted by Roskam. **7.30,** Time and News. **7.45,** Opera Music on Gramophone Records. **8.15,** Press Review in German and Lottery Results. **8.30,** Concert by a Miners' Band from Sarre and Moselle, relayed from **Merlebach.** Overture, Der Freischütz (Weber); Suite marocaine (Delmas); Male Voice Choir: (a) Hymn (Wagner), (b) Frühlingsgruss (Schumann). (c) Vineta (Baumann); Selection from Werther (Massenet); Male Voice Choir: (a) Mein liebes Rosseltal (Schneider), (b) Les chants Lorrains (Delibes); Minuet (Boccherini); Minuet from Symphony No. 31 (Haydn); Male Voice Choir: (a) Air from The Arabian Nights (Joh. Strauss-de Rillé), (b) The Soldiers' Chorus from Faust (Gounod); March Troyenne (Berlioz). In the interval, Press Review in French and Talk. **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres, 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**12 Noon,** Open Air Concert by the Stahlhelm Band, conducted by Barthelmeus: Germaniamarsch; Overture, Rosamunde (Schubert); Waltz, Verschmähte Liebe (Lincke); Potpourri, Wiener Volksmusik (Komzak); In a Persian Market (Ketelbey); Waltz, Nachtschwärmer (Ziehrer). **1.0 p.m.,** Gramophone Records of Light Music. **1.15,** Time, News, Weather, and Programme Announcements. **1.30,** Concert from **Langenberg.** **2.0,** Programme arranged by the Post Office, with Gramophone Records. **2.30,** Spanish Lesson. **3.0,** Elementary English Lesson. **3.30,** Programme for Young People. **4.30** (approx.), Programme from **Frankfurt.** **5.50,** Time, Weather, and Agricultural Notes. **6.0,** See **Frankfurt.** **6.25,** Talk: The Wife and her Husband's Career. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Langenberg.** **8.0,** The Special Constabulary—A Radio Report. **8.25,** Programme of Contemporary Music and Literature; The Stuttgart Philharmonic Orchestra, conducted by Otto Schfert; Gretl Blind, Irma Schwab, and Heinz Lanbenthal (Recitations), Emma Mayer (Contralto), and August Rapold (Tenor); Commentary by Martin Lang: German Suite (Max Trapp); Prose by Auguste Supper; Poems by Auguste Supper; Marienlieder (Armin Knab); Prose and Poems by Anna Schieber; Songs (Walter Frimmel) to Words by Stefan George; Prose and Verse by Johanna Wolff. **10.0,** Time, News, Weather, and Programme Announcements.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—**6.15 p.m.,** Operetta Music: Songs from Die geschiedene Frau (Fall); The Gipsy Princess (Kálmán); and Rip van Winkle (Planquette). **6.30,** Programme for Children. **7.0,** Argentine Music. **7.15,** News, Racing Results and Exchange. **7.25,** Local News. **7.30,** Opera Music: Songs from L'Africaine (Meyerbeer), Boris Godunov (Borodin) and The Damnation of Faust (Berlioz). **7.45,** Viennese Music. **8.15,** Songs. **8.30,** Orchestral Music. **8.45,** Extracts from The Valkyries—Opera (Wagner). **9.30,** Military Music. **9.45,** Songs from Operettas. **10.0,** Opéra-Comique Songs: Overture, Bandi-tentreiche (Suppé); Songs from Norma (Bellini); Prelude to Carmen (Bizet). **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0 to 12 Midnight,** Programme in English by the I.B.C. W. Brown-Constable announcing. **11.0,** Concert of Light Music by the I.B.C. (Ireland) Ltd.: Londonderry Air; Pianoforte Solo: When Day is done; Selection from Merrie England (German); Song: Love is like a Song (Youmans); Song: I believe in you (Maurice); Pianoforte Solo: Sweetheart, I'm dreaming of you; Medley of Irish Jigs (Hannah). **11.30,** Light Music: Black Eyes (Ferraris); Daddy (Behrend); Bless this House (Taylor); Die Spieluhr des Puppadours (Noack); The Song of the Nightingale (Ailbout); My Darling; Her Name is Mary (Ramsay); Love's Dream after the Ball (Czibulka). **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Friday),** Songs for Choir. **12.15,** Accordion Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.10 p.m.** till Close Down., See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**5.10 to 6.0 p.m.,** Orchestral Concert. **6.35,** Giornale Radio and Agricultural and Dopolavoro Notes. **7.0,** Time, Tourist Report and Gramophone Records of Popular Music. In the interval from **7.20 to 7.45,** Giornale Radio. **8.0,** Announcements, Giornale Radio, Weather and Gramophone Records (contd.). **8.50,** Talk on the following Transmission. **9.0,** Lodoletta—Opera (Mascagni), from the Scala, Milan. Talk in the interval. Giornale Radio after the Programme.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning); and **5,969 kc/s, 50.26 metres (Evening);** 10 kW.—**11.0 to 11.15 a.m.,** Religious Information in French. **8.0 to 8.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—**4.45 p.m.,** Orchestral Concert. **6.0,** Talk for Women: The Roman Emperors and their Wives. **6.25,** Talk: Theatre Week. **6.35,** Talk arranged by the Board of Trade. **7.0,** Talk: Birds and Bird Songs. **7.25,** Time, Weather and Programme Announcements. **7.35,** Concert, relayed from **Innsbruck.** The Innsbruck Municipal Symphony Orchestra, a Church Choir and Soloists: Emma Hampl-Haupolter (Songs), Lisl Macheiner (Reading), and Siegfried Nessler (Pianoforte). Conductors: The Composers. Overture, Hans im Glück (Senn); Reading (Elisabeth Heinrich); Kirschenbämme (Kanetscheider); Easter Song (Senn); Komm zu mir (Kattnigg); Intermezzo (Nessler); Two Songs for Choir and Orchestra (Koch); Abendmusik (Kattnigg). **9.5,** Concert by the Volksoper Orchestra, conducted by Karl Anderieth. In the interval at **9.45** (approx.), News. **10.35,** Announcements. **10.40,** Dance Music, relayed from the Café Splendide.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Popular Music on Gramophone Records. **12.30,** Weather Forecast. **12.35,** Twenty-fourth Concert for Schools by the Warsaw Philharmonic Orchestra. **2.0 to 3.10.** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Popular Music on Gramophone Records. **3.35,** Review of Periodicals for Women. **3.50,** Popular Music on Gramophone Records. **4.25,** Intermediate French Lesson. **4.40,** Talk. **5.0,** Spanish Music on Gramophone Records. **5.40,** Topical Talk. **5.55,** Programme Announcements. **6.0,** Biological Talk. **6.20,** News. **6.25,** Dance Music, relayed from the Café Italia. **7.0,** Miscellaneous Items. **7.20,** Agricultural Report. **7.30,** Reading. **7.45,** Radio Journal. **8.0,** Concert of Light Music by the Station Orchestra, conducted by S. Nawrot. Soloist: B. Mierzejewsky (Songs). Overture, La Belle Hélène (Offenbach); Japanese Lantern Dance (Yoshitomo); Rusticanella (Cortopassi); Three Songs; Potpourri (Manfredi); Overture, Die Felsenmühle (Reissiger); Liebeserklärung (Sieb); Two Songs; Slav Dance, No. 10 (Dvorak); Seatzwalzer (Joh. Strauss); Mazurka from Polenblut (Nedbal). In the interval, Sports Notes and Radio Journal. **9.30,** Talk on Orange Blossom, relayed from **Cracow, 559 kc/s (312.8 metres).** **10.15,** Chamber Music on Gramophone Records. **10.55,** Aviation Weather Report and Police Notes. **11.0,** Dance Music, relayed from the Café Gastronomia.

ZURICH.—See **Schweizerischer Landessender.**

FRIDAY

APRIL THE TWENTY-EIGHTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Mr. J. B. Priestley: "I'll tell you everything." Symphony concert of Russian music.
LONDON REGIONAL	"Our Crazy (H)Our," feature programme.
MIDLAND REGIONAL	"What's in the Wind?" by R. Clements.
NORTH REGIONAL	"Theme and Variations, or Hunting the Professor," a burlesque by Paul Dehn.
SCOTTISH REGIONAL	"Frae a' the Airts," feature programme.

ABROAD

BERLIN (Witzleben)	8.5 p.m. Opera: "The Court Concert" (Paul Scheinpflug), conducted by the composer.
HUIZEN	8.55 p.m. The Haarlem Orchestral Society, conducted by Frits Schuurman.
KONIGSWUSTERHAUSEN	7 p.m. "We Proclaim the First of May" (relayed by other German stations).
OSLO	8 p.m. Symphony concert from the Logen Hall.
PALERMO	8.45 p.m. Opera: "L'Elisir d'Amore," by Donizetti.
POSTE PARISIEN	8.30 p.m. Opera: "Les cent Vièrges," by Lecocq.
PRAGUE	7.30 p.m. Opera: "Khovantchina" (Mussorgsky) (relayed from **Brno**).
RADIO PARIS	8.45 p.m. Opera: "The Barber of Seville" (Rossini), from the Théâtre de la Porte St. Martin.
STUTTGART	8 p.m. Opera: "Der Freischütz," by Weber.
WARSAW	8.15 p.m. Concert conducted by Fitelberg, from the Philharmonic.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **CORK, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.15,** Programme for Children. **7.0,** Light Music on Gramophone Records. **7.20,** News. **7.30,** Time Signal. **7.31,** Talk on Gardening. **7.45,** Talk on Architecture. **8.0,** Songs by the Good Companions. **8.30,** Pianoforte Solos by Sydney Green. **8.50,** Mezzo-Soprano Solos by Mary Crowley. **9.5,** The Station Orchestra. **9.20,** Talk on the Poetry of Sir Samuel Ferguson. **9.45,** The Station Orchestra. **10.30,** Time Signal, News, Weather Report and Close Down.

BARCELONA

Call EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert: Minuet from Le bourgeois gentilhomme (Lully); Silhouettes (Ewing); 'Cello Solo; Rêverie (Vallaury); Selection from Le Cid (Massenet); Serenata (Roland); Rondo alla turca (Mozart). **8.0,** Dance Music relayed from the Hotel Ritz. **8.30** (in an interval), Exchange Quotations. **9.0,** Popular Gramophone Records and News Bulletin. **10.0,** Chimes from the Cathedral, Weather Forecast, Messages for Seamen, Exchange and Market Prices. **10.10,** Orchestral Music: Overture, Il Guarany (Gomez); Noche en la bahia de Palma (Turina). **10.20,** Concert by the Demon's Jazz Band. **11.0,** Talk: Comets. **11.15,** Orchestral Concert relayed from the Café Español. **12 Midnight** (in an interval), News Bulletin. **1.0 a.m. (Saturday)** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Notes; Tourist Report; and Dopolavoro Notes. **8.20,** Giornale Radio and Weather. **8.30,** Time and Announcements. **8.35** (approx.), Concert of Opera Music. Soloists: Giacomo d'Annunzeo (Tenor), and De Santis Bruno (Soprano). Overture, Salvator Rosa (Gomez); Tenor Solo from Don Pasquale (Donizetti); Soprano Aria, from Manon Lescaut (Puccini); Fantasia, from Fra Gherardo (Pizzotti); Tenor Aria from Mignon (Thomas); Soprano Aria from The Daughter of the Regiment (Donizetti); Selection from Il Re (Giordano); Selection from Oberto, Conte di S. Bonifacio (Verdi); Tenor Aria from L'Elisir d'amore (Donizetti); Soprano Aria from Madame Butterfly (Puccini); Selection from Act III of André Chenier (Giordano); Tenor Aria from Luisa Miller (Verdi); Soprano Aria from Lakmé (Delibes); Waltz from Macbeth (Verdi). In the interval, Talk. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.5 kW.—**4.30 p.m.,** Orchestral Concert: March, Two Comrades (Rendla); Potpourri, Serbian Flowers (Urban); Waltz, Fatima (Urban); First and Second Turkish Suites (Gauwin); Romance (Rubinstein); Toreador and Andalouse (Rubinstein). **6.55,** Time and Programme Announcements. **7.0,** Talk. **7.30,** Talk (to be Announced). **8.15,** See **Warsaw. 10.0** (approx.), News.

BERLIN

KONIGS WUSTERHAUSEN, 483.5 kc/s, 1,635 metres; 60 kW.—**4.30 p.m.,** Concert from **Leipzig. 5.10,** Topical Report. **5.30,** German for Germans. **6.0,** A Poem. **6.5,** Violin Recital by Robert Zeiler. Sonata in D, No. 2 (Haydn); Noveletta (d'Ambrosio); Canzonetta (d'Ambrosio). **6.30,** Talk: Racial Hygiene. **6.50,** Weather, followed by Wireless Notes. **7.0,** Transmission for all German Stations: We proclaim the First of May. **8.0,** Talk by Kurt G. Sell: What People are talking about in **America,** relayed from **America** (on Gramophone Records). **8.15,** Programme from **Stuttgart. 10.15,** Weather, News and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Part II of the Concert from **Frankfurt. 12 Midnight** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.30 p.m.,** Concert by the Konrad Wölki Mandoline Orchestra. March, Gruss aus Berlin (Neuhoff); Im Wald und auf der Heide (Wormsbacher); Overture No. 1 in A (Wölki) Marionetten (Snzuki); Unter der Dorflinde—German Folk Tunes and Dance Melodies (Ritter); March, In Treue allezeit (Pöhland). **5.15,** Review of Books. **5.35,** The World as a School—a Berlin Comedy for Young People (Frederick the Great, arr. by Walter Ilges). **6.15,** Talk: Exemplary Lives. **6.40,** Announcements. **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.5,** Das Hofkonzert (The Court Concert)—Opera in Three Acts (Paul Scheinpflug). Conductor: The Composer. **10.10,** Weather, News and Sports Notes, followed by Dance Music. **12 Midnight** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**6.15 p.m.,** Radio Journal. **7.30,** News. **7.40,** Popular Music on Gramophone Records. **7.55,** Lottery Results. **8.0,** Spanish Lesson. **8.15,** News. **8.30,** Orchestral Concert.

BRATISLAVA

1,076 kc/s, 279 metres; 11 kW.—**6.5 p.m.,** Legal Talk. **6.15,** See **Prague. 7.25,** See **Brno. 10.0,** See **Prague. 10.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—1.5 p.m.,** Weather for Farmers. **1.10,** Marches on Gramophone Records. **1.45,** Time, Weather, News, and Exchange Quotations. **2.5,** Richard Strauss Concert on Gramophone Records: Selection from Die ägyptische Helena; Two Songs: (a) Ständchen, (b) Heimliche Aufforderung; Love Song from Feuersnot; Song, Cäcilie The Tailor's Entrance and Dance from Le Bourgeois Gentilhomme. **2.45,** Programme arranged by the Post Office with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Programme for Children. **4.10,** Book Review. **4.30,** Orchestral Concert relayed from **Gera.** Overture, Der dumme August (Gfadler); Holbergiana, Op. 61 (Gade); Waltz (Fuchs); Selection from Die Folkunger (Kretschmer); Selection from Don Cesar (Dellinger). **5.30,** Agricultural Prices. **5.35,** William of Orange in Contemporary Literature—Programme by Curt Vogt. **6.5,** Topical Talk. **6.30,** Talk: Science and a Conception of Values. **7.0,** Transmission for all German stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** Weather for Farmers and Meat Market Prices. **8.5,** Orchestral Concert, conducted by Fritz Marszalek: Selection from Das Christelflein (Pfitzner); Prelude to the Third Act of Der Pfeifertag (Schillings); Prayer from Das höllische Gold (Bittner); Waltz Scene from Intermezzo (R. Strauss); Selection from Hanneles Himmelfahrt (Graener). **8.50,** News. **9.0,** Das Käthchen von Heilbronn—Play (Kleist), arranged for Radio, with Incidental Music by Karl Sczuka. **10.30,** Time, Weather, News, Sports Notes, and Programme Announcements. **10.50,** Dance Music relayed from **Berlin (Witzleben). 12 Midnight,** Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by J. Janota. Overture: Hamlet (Tchaikovsky); Holberg Suite (Greig); Nocturne (Moor); Slav Rhapsody in G Minor (Dvorák). **4.55,** Theatre Notes. **5.5,** See **Prague. 6.5,** Talk on Art. **6.15,** Programme for Workers. **7.0,** See **Prague. 7.25,** Introductory Talk to the following Transmission. **7.30,** Khovanstchina: Opera in Five Acts (Mussorgsky), relayed from the National Theatre. **10.0,** See **Prague. 10.15** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 560 kc/s, 509 metres; 15 kW.—**12 Noon,** Gramophone Concert: Selection from the First Act of La Traviata (Verdi); extracts from Faust (Gounod). **1.0,** Le Journal Parlé. **1.10,** Concert by the Little Radio Orchestra, conducted by M. Leemans: Paso doble, Paldo (Rossi); Ballet russe (Luigini); Idylle passionnelle (Razigade); Selection from The Gipsy Princess (Kalman); Violin Solo, Liebesleid (Kreisler); Spanish Dance, Conchita (Hesse); Pianoforte Novelty, Valet de carreau (Steele). **2.0,** Educational Programme. **5.0,** Concert by the Radio Orchestra, conducted by M. André: Overture, La Châlet (Adam); Selection from Manon Lescaut (Puccini); Violin Solo, Romance (Svendsen); Petite Suite (Chaminade); Serenade for 'Cello and Orchestra (Godard); Images entantines (Strens); Fantasia on Popular Airs of Tournai (Daneau). **6.0,** Financial Talk. **6.15,** Extracts from Namouna—Ballet (Lalo) on Gramophone Records. **6.30,** Concert by the Little Radio Orchestra, conducted by M. Leemans: Overture, Les Hirondelles (Hirschman); Frivolités (Février); Selection from La petite Mariée (Lecocq); Air de Ballet, Les Libellules (Bouillard); 'Cello Solo: Hungarian Rhapsody (Popper); Ballet Suite (Popy). **7.15,** Wireless Technical Talk by Mr. Valentin Kleynen, Member of the American Radio International Guild. **7.30,** Legal Talk and Literary Review. **8.0,** Military Band Music and Talk for Ex-Soldiers. **8.45,** Talk by Count Goblet d'Alviella: Gymnastic Training in Belgium. **9.0,** Concert by the Radio Orchestra, conducted by M. André; Soloist, Mlle. Laircoe (Songs): March, Le rêve passe (Krier); Selection from La Vivandière (Godard); Violin Solo, Rêverie (Vieuxtemps); Songs: (a) Legend (Sarly), (b) Die Krähe (Schubert), (c) Song (Schubert), (d) Air from La Cenerentola (Rossini); Suite fumanbulesque (Messager); Dutch Dances (Siep); Flower Waltz (Tchaikovsky). **10.0,** Le Journal Parlé. **10.10,** The Listeners' Quarter of an Hour. **10.25,** Gramophone Concert of Light Music. **11.0,** La Brabançonne.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—Programme in Flemish.—**12 noon,** concert by the Small Station Orchestra, conducted by P. Leemans. Soloist: M. Wigy (Violin): March, Vivat Hungaria (Kalman); Suite, Woodland Pictures (Fletcher); Les trésors de Colombine (Drigo); Selection from Grigri (Lincke); Serenade for Violin (Drdla); Waltz (Abraham); Romanian Sketch, In the Mountains of Transylvania (Dreyer); Ein Tango macht verlicht (Komjati); 1930, Potpourri of American Airs (Nicholls). **1.0 p.m.,** Journal Parlé. **1.10,** Gramophone Concert: Overture, Light Cavalry (Suppé); Slav Dances Nos. 1, 2, 3 and 4 (Dvorak); Valse caprice (Rubinstein); Jota Aragonesa (Sarasate); Suite funambulesque (Messager); Overture, Poet and Peasant (Suppé). **2.0,** Programme for Schools. **5.0,** Dance Music from the St. Sauveur Palais de Danse. **6.0,** Light Music on Gramophone Records. **6.15,** Book Review. **6.30,** Airs from Le festin de d'araignée Ballet (Roussel), on Gramophone Records. **6.45,** Brahms Pianoforte Recital by Marcel Gazelle: Intermezzo in E Flat, Intermezzo in B Flat Minor; Variations on a Theme by Handel. **7.15,** Talk: Broadcasting in Different Countries, I.—Germany. **7.30,** Talk on Wireless. **8.0,** Saint Francis — Oratorio (Tinel) by the Symphony Orchestra Choirs and Soloists. In an interval at **8.30,** Reading. **10.15,** Journal Parlé. **10.25,** Light Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Light Music and Romanian Music by the Sibiceano Orchestra. **6.0,** Radio Journal. **6.15,** Concert by the Sibiceano Orchestra (contd.). **7.0,** Educational Talks. **7.55,** Time Signal. **8.0,** Opera Music on Gramophone Records. **10.0,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW.—Also relayed on **840 metres** from **7.0 p.m.** till Close Down. **5.0 p.m.,** Dance Music with Vocal Refrains, relayed from the Café Ostende. **6.0,** Talk. **6.30,** Recital of Scandinavian Songs by Fran Waldemar Langlet. **7.0,** Talk on Sweden. **7.30,** Concert by the Bela Racz Cigány Band. **9.0,** Hungarian Sonatas (Dohnanyi-Vegh). **10.15,** News, followed by Cigány Music from the Hotel Britannia.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time and Chimes from the Town Hall. **12.5 p.m.,** String Ensemble Concert, relayed from the Bellevue Strandhotel. **1.15,** Broadcast for Schools. **1.45 to 2.40,** Interval. **2.40,** Orchestral Concert, conducted by Launy Gröndahl. Soloist: Ingeborg Larsen (Pianoforte). March (v. Blon); Overture, Czar and Carpenter (Lortzing); Selection from La Fille de Madame Angot (Lecocq); Waltz, La Gitana (Bucalossi); Humoresque, Au Moulin (Gillet); Mazurka from Coppélia (Delibes); Military Parade March (Massenet); Pianoforte Solos: (a) Impromptu in A Flat, Op. 29 (Chopin), (b) Ballade in A Flat, Op. 47 (Chopin), (c) Viennese Dances Nos. 1 and 2 (Friedmann-Gärtner); March (Metra); Overture, Flotte Bursche (Suppé); Selection from The Circus Princess (Kálmán); Waltz, Je t'aime (Waldteufel); Dance of the Hours from La Gioconda (Ponchielli); Gallop, Til Derby (Aage Bruun). **4.40,** Oliver Twist—Radio Play for Children (after the Novel by Charles Dickens) with Incidental Music. **5.40,** Exchange and Fish Market Prices. **5.50,** Talk: Agricultural Problems. **6.20,** German Lesson. **6.50,** Weather Report. **7.0,** News. **7.15,** Time Signal. **7.30,** Talk. **8.0,** Chimes from the Town Hall. **8.2,** Programme by Per Knutson. **8.10** Concert of Sacred Music, relayed from Christiansborg Castle Church. **8.50,** Riders to the Sea—Play in One Act (John M. Synge). **9.30,** Violin Recital by Christian Esbensen: Londonderry Air (Kreisler); Spanish Dance (Granados-Kreisler); Andalusian Romance (Sarasate); Malaguena (Albeniz). **9.50,** En Herre fra Firserne—Comedy in One Act (Holger Rordam). **10.10,** News. **10.25,** Trio Concert. Soloist: Aase Wallenstrom (Songs), Neapolitan Dance Song (Tchaikovsky); Marechiare (Tosti); Two Songs; Spanish Waltz (Frorup); Swedish Melody (arr. Petersen); Two Swedish Folk Songs; Arab Dance (Tchaikovsky); Rondo alla turca (Burgmüller); Two Songs (Gyldmark). **11.0** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**12 Noon,** Light Music on Gramophone Records. **12.30 p.m.,** News. **12.45,** Radio Concert. **5.30 to 7.0,** Programme in English by the I.B.C. Announcers: C. Danvers-Walker, B. McNabb and F. Lamping. **5.10,** Concert for Southampton and Winchester Listeners. Orchestra: Under Heaven's Blue (Payan); Song, The Ratcatcher's Daughter (Traditional); Trio: (a) Dreaming (Flannagan), (b) To-night (Kennedy); Orchestra: By the Sleepy Lagoon (Coates); Minstrel Memories; Song, Villikins and his Dinah (Traditional); Trio: (a) So ashamed (Davies), (b) Me minus you (Webster); Orchestra: Nautical Moments (arr. Winter). **6.15,** Violin Recital for Bournemouth and Weymouth Listeners. Orchestra: Salut d'amour (Elgar); Larghetto (Weber); Spanish Dance (Falla); Ballet Music from Rosamunde (Schubert); Tambourin chinois (Kreisler); Blossoms from Mozart's Garden; Cavatina (Raff); Caprice viennois (Kreisler); Meditation from Thais (Massenet); Caprice Basque (Sarasate); Orchestra: Serenade (Pierné). **7.0,** Radio Gazette. **7.20,** Local News. **7.30,** Popular Music on Gramophone Records. **7.45,** Agri-

APRIL 28th **FRIDAY** *continued*

cultural Talk. 8.0, Popular Music on Gramophone Records, and News. 8.30, Concert, relayed from Le Havre. 10.0 till Close Down, Programme in English by the I.B.C. 10.2, Dance Music by the Decolians: Lights of Paris; It always starts to rain; It happened in Monterey; Just a little closer; Linda; I don't mind walking in the Rain; Little Painted Doll; Get the Bench, get the Park; The Waltz you saved for me; Smile, darn ya, smile; Carry on; My cradle is the Desert; With my Guitar and you; Lazy Day; Jolly Good Company. 11.0, Music by a Symphony Orchestra: Overture, A Midsummer Night's Dream (Mendelssohn); Two Airs from Hansel and Gretel (Humperdinck): (a) The Witches' Ride, (b) Gingerbread Waltz; Song without Words in A Minor (Tchaikovsky); Two Pieces from The Peer Gynt Suite (Grieg): (a) Morning, (b) The Hall of the Mountain King; Hungarian Dance No. 6 (Brahms). 11.30, Vocal and Orchestral Concert: On Wings of Song (Mendelssohn); Songs: (a) The Toymaker's Song (Glass), (b) Tick Tock (Glass), (c) In Sheltered Vale (Clarke); Poem (Fibich); Songs: (a) Onaway, awake Beloved (Cowen), (b) Sinners and Saints (Gechl), (c) The Song of Hybreas the Cretan (Elliott). 12 Midnight, Club Concert for Anglesey Listeners: The Mad Major; Songs my Mother sang; Talk by Mr. Walter Jones, clerk of the County Council; Beneath thy Window; I know of Two Bright Eyes; Sospan Fach; The Whistler and his Dog; This is the Day of Days; Carry on; Hen wlad fy nhadau; Tell me Tonight; La Danza; Cupid's Army, Selection from The Desert Song (Romberg). 1.0 a.m. (Saturday), Music by a Hawaiian Band: My South Sea Home (Camilio); Aloma (Bowers); Maui Girl (Libornio); Julien (Donata); On a little Street in Honolulu (Sherry); Makin' Wicky Wacky down in Waikiki (Hoffmann); All through the Night (Vallee); Song of the Islands (King). 1.30, Vocal Duets: Where Rainbows rest; Just a little Tear; Yes, indeed; Orchestra: Potpourri of Sound Film Music; When Baby cries for the Moon; When I catch you alone; I've always wanted to call you Sweetheart. 2.0, Dance Music by the Decolians; Butterflies in the Rain; Toasts; Wheezy Anna; The King's Navee; How are you?; Leave a little for me; Let's all dance the Polka; How do you do Mr. Brown?; I can't write the Words; the Lady I love; Isn't it romantic?; Liszt, Chopin and Mendelssohn; Ain't cha coming out tonight?; When they're on the love Parade; Big Ben's saying Goodnight. 2.57, I.B.C. Goodnight Melody. 3.0 (approx.), Close Down.

FLENSBURG. See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres, 17 kW.; **Cassell, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—6.0 p.m., Talk: The Excavations in the Geisel Valley. 6.25, Talk: The Mission of the Stahlhelm Organisation. 6.50, Time, Programme Announcements, Weather, and Economic Notes. 7.0, Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen).** 8.0 to 10.15, See **Stuttgart.** 10.15, Time, News, Weather, and Sports Notes. 10.30, Orchestral Concert, conducted by Reinhold Merten: Part I, Suite from Figaro (Mozart); Suite from Idomeneo (Mozart); Part II: Contemporary Music; Festival March, Op. 2 (Schaub); Serenade from Die Kunst zu lieben, Op. 34 (Volbach); Heiteres Spiel, Op. 68 (Theodor Blumer); Dance Suite, Aus galanter Zeit, Op. 10 (Klaas); Prelude, An mein deutsches Land, Op. 48 (Zilcher). 12 Midnight (approx.). Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—5.55 p.m., Dialogue between the Authors, Wilhelm Weigand and Hans Brandenburg, on Bavarian Culture. 6.20, Radio Report on Poultry-Keeping, relayed from the Agricultural College. 6.40, Talk: The Training of Farmers' Daughters. 6.45, Exchange and Market Prices. 6.50, Weather Forecast. 7.0, Programme for all German Stations, relayed from **Berlin (Königs Wusterhausen).** 8.0 See **Berlin (Witzleben).** 10.0, Time, Weather, Announcements, Sports and Police Notes. 10.20, The Idols fall—Heathendom's Struggle against Westernisation (Wult Bley). 10.45, The Trout Quintet: Op. 114 (Schubert), relayed from the University. 11.15, Light Music on Gramophone Records. In an interval at 11.25, Talk from **Berlin (Witzleben).**

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.**—1.5 p.m., Gramophone Concert: Ballet Music from La Gioconda (Ponchielli); Two Soprano Solos (Brahms): (a) Die Mainacht, (b) Vergebliches Ständchen; Die Welle (Metra); Tee bei Maikäfers (Noack); Potpourri, Contrasts (Robrecht); Selection from La Princess de Trébizonde (Offenbach); Paraphrase on Annie Laurie (Scott-Wood); Walzertrümpfe (Robrecht); Forgotten Dreams (Farnggia); Carmela (Cominon); Bei uns in Budapest (Zitzewitz); Welcher Weg führt zum Glück (Zitzewitz); Potpourri Was euch gefällt. In an interval at 1.20, News. 2.30, Programme arranged by the Post Office, with Gramophone Records. 3.0, Exchange Quotations. 3.30, Programme for Children. 4.0, Talk for Women. 4.30, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Kaiser-Walzer (Joh. Strauss); The Nutcracker Suite (Tchaikovsky); Overture, Le Roi d'Yvetot (Adam); Narcissus (Nevin); Serenade (Jensen); Pesther-Walzer (Lanner); Slav Rhapsody (Volpatti); March, Hand in Hand (Blon). 5.45 (from **Danzig**), Talk on Bee-Keeping. 6.15, Market Prices. 6.25, A Spring Excursion in Song. Recital with Lute and Recorder accompaniment: Folk Song, So treiben wir den Winter aus (16th Century); Spring Song (Hensel); Old Roundelay, Nun will der Lenz uns grüssen; Lieblich ergrünen (Seventeenth Century); Herzensveilchen (Sixteenth Century); Wie herrlich leuchtet mir die Natur; Frühzeitiger Frühling (Zelter); Aufforderung zur Fremde (J. A. P. Schulz). 6.50, Weather Report. 7.0, Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen).** 8.0, News Bulletin. 8.5, See **Berlin (Witzleben).** 10.10, Weather, News and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—12.40 to 3.10 p.m., Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 12.40, Time Signal. 12.41, Concert by the Wireless Orchestra, conducted by Nico Treep: Frieden und Freiheit (Blankenburg); Overture, Martha (Flotow); Ballet Music from La Juive (Halévy); Melody (Rubinstein) Song (Rubinstein); Il Baccio (Arditi); Gramophone Records; Selection from Rose-Marie (Friml); Souvenir (Didla); Cantabile (Cui); Amorettentänze (Gungl); Gramophone Records; Selection from The Czarevitch (Lehár); Chinese March (Klose). 2.40, Variety Music on Gramophone Records. 3.10, Programme to be announced. 4.40 to 8.40, Programme of the Workers' Radio Society (V.A.R.A.). 4.40, Variety Music on Gramophone Records. 5.30, Programme for Children. 6.10, Organ Recital by Johan Jong: Second Fantasia on Faust (Gounod-Tavan); Old Father Thames (Wallace); Quicksilver (Taphet); Russian Songs (Balachow); Workers' March (Hegeraat). 6.40, Light Music on Gramophone Records. 6.55, Concert by the V.A.R.A. Orchestra, conducted by Hugo de Groot: Selection from The Huguenots (Meyerbeer-Fetras); Potpourri, Vom Gluck bis Wagner (Schreiner). 7.20, Talk: Soviet Russia. 7.40, Song Recital by P. Harden. 7.50, Orchestral Concert (contd.): Our Song (de Groot). 8.10, Song Recital (contd.). 8.20, Orchestral Concert (contd.): Overture, Zampa (Hérold); Selection from The Maid of the Black Forest (Jessel). 8.40 to 11.40, Programme of the Liberal Protestant Radio Society (V.P.R.O.). 8.40, Talk. 9.10, Concert. 9.40, Talk. 10.10, Concert. 10.40, Religious Report. 10.45, News Bulletin. 10.55, Talk. 11.25, Gramophone Records. 11.40 till Close Down, V.A.R.A. Programme. 11.40, Song Recital by A. de Booy, accompanied by C. Steyn (Organ). 12.10 a.m. (Saturday), Light Music on Gramophone Records. 12.40 (approx.), Close Down.

HORBY. See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW. Programme of the Christian Radio Society (N.C.R.V.).—1.10 p.m., Concert by the v.d. Horst Trio and J. H. v. Ginkel (Clarinet): Overture, Il Seraglio (Mozart); Waltz, Sphärenklänge (Jos. Strauss); Selection from Der Obersteiger (Zeller); La Serenata (Metra); Russian Potpourri, Eisenblumen (Leuschner); Gramophone Records; Overture, Martha (Flotow); Waltz, Dortkinder (Kálmán); Selection from Das Nachtlager in Granada (Krentzer); Valse triste (Sibelius); Selection from Ariane (Masschaet). 2.40 to 3.10, Interval. 3.10, Religious Address. 3.40, Talk for Women. 4.10, Concert by the Dutch Harp Quartet: Hymn (Berghout); Spring Song (Mendelssohn); Cherry Ripe (C. Scott); Serabande (d'Hervelois); Courante (Lully-Pietigorski); Impromptu-Caprice (Pierné); Organ Solo: Capriccio (Rheinberger); Gramophone Record; Air de Colin (Rousseau-Zeppatore); Siciliana (Martini-Zeppareni); Andantino and Allegro (Rossi); Petite Suite (Berghout); Toccata (Andriessen). 5.40, Programme for Young Stamp Collectors. 6.10, Talk for Young Photographers. 6.40, Talk. 7.10, Gardening Talk. 7.40, Literary Talk. 8.10, Police Notes. 8.25, Religious Report. 8.40, Variety Music on Gramophone Records. 8.55, Concert by the Haarlem Orchestral Society, conducted by Frits Schuurman: Soloists: Bertha Kalff (Violin) and Francis Koene (Violin): Second Symphony in D (Beethoven); Double Concerto in D Minor for Two Violins and String Orchestra (Bach). 9.45, Recitations. 10.15, Concert (contd.): Concerto for Violin in E Minor (Mendelssohn); Les Préludes (Liszt). 11.0, News. 11.10, Light Music on Gramophone Records. 12.10 a.m. (Saturday), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc/s, 249.6 metres; 0.8 kW.—8.0 p.m., Amusement Guide, News, and Exchange. 8.15, Esperanto Lesson. 8.30, Radio Concert. 9.0, Weather and Racing Results. 9.15, Radio Concert. 9.45, Jazz Music relayed from the Palais de la Méditerranée, Nice. 12 Midnight to 1.0 a.m. (Saturday), Programme in English by the I.B.C. Announcer: H. K. Hitchcock. 12 Midnight, Organ Recital: La Serenata (Braga); Intermezzo from Cavalleria Rusticana (Mascagni); A Perfect Day (Jacobs Bond); In a Chinese Temple Garden (Ketelbey); Love's Old Sweet Song (Molloy); Who am I? (Newman); Popular Scottish Medley; For the Sake of the Days gone by (Wallace). 12.30, Dance Music; What a Perfect Combination; Look what you've done; A Letter to my Mother; Standing on the Corner; I'm playing with Fire; Willow weep for me; Do you recall? Can't we meet again? 12.57 a.m., I.B.C. Good-night Melody. 1.0, Close Down.

KALUNDBORG.—See **Copenhagen.**

KAUNAS

155 kc/s, 1,925 metres; 7 kW.—7.30 p.m., Concert. 8.10, Talk for Women. 8.30, Variety Programme. 8.50, Talk: Jews in Lithuania. 9.10, Violin Concerto in D (Mozart). 9.40, Sports Notes. 9.50, Concert: Selection from Aida (Verdi); Suite from L'Arlesienne (Bizet). 10.30 (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 54 kW.; and **Helsinki, 815 kc/s, 368.1 metres.**—6.15 p.m., Reading. 6.40, Talk. 7.5, Concert by the Students' Orchestra, relayed from Helsinki University. 8.45, News in Finnish. 9.0, News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12 Noon, Orchestral Concert, relayed from the Restaurant Kyllhäuser, Bielefeld: March, Der Jugend marschiert (Lindemann); Overture, Fridericiana (Zimmer); Selection from The Gipsy Baron (Joh. Strauss); Waltz from The Maid of the Black Forest (Jessel); Schlaraffenlledermarsch (Lorenz); Neuer Westfalenmarsch (Langhorst). 12.50 p.m., Weather, Time and News. 1.0, Concert conducted by Eysoldt: March, Durch Nacht zum Licht (Laukien); Overture, Jessonda (Spohr); Four Ballet Arias (Drigo); Fantasia, Aus Webers Blütenkranz (Schreiner); Viennese Waltz (Delmas); O komm im Traum (Liszt); Murmelndes Lüftchen (Jensen); Selection from Frederica (Lehar). In the interval at 2.0, News. 2.30 to 3.0, Interval. 3.0, Talk: German Writers. 3.30, Economic Notes and Time. 3.50, Programme for Young People: Physics and Chemistry. A Visit to the Langenberg Youth Hostel. 4.30, Orchestral Concert, conducted by Kühn. Soloist: Robert Grote (Cello). Overture, Das Liebesverbot (Wagner); Concerto for 'Cello and Orchestra (Graener); Eine Faust-Ouvertüre (Wagner); Mephisto-Walzer (Liszt). 5.50, Book Review. 6.0, Talk: Rhine Shipping Problems. 6.20, English Conversation. 6.45, Weather, Time, Economic Notes and Sports Results. 7.0, Transmission for all German Stations relayed from **Berlin (Königs Wusterhausen).** 8.0, News Bulletin. 8.15, Historia der Auferstehung Jesu Christi (Schütz) for Soloists, Choir and Organ, relayed from the Karthäuserkirche. 9.35, String Quartet in C Minor, Op. 51, No. 1 (Brahms). 10.0, News and Sports Notes. 10.15, Talk: What People are talking about in America, relayed from **America.** 10.45, Serenade from **Frankfurt.** 12 Midnight, Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—12.5 p.m., German Music in the Home—Vocal and Instrumental Concert; Soloist: Emmy Dachne (Mezzo-Soprano). In the interval at 1.0, News, Weather, and Time, Exchange Quotations after the Concert. 2.0, Art and Film Review. 2.30, Talk on Richard Erick on the Thirtieth Anniversary of his Death. 2.45, Otto von Linde—Introductory Talk on Readings. 3.15, Talk for the Country-women: Rearing Calves. 3.35, Market Prices. 4.0, Natural History Talk: Snakes and Saurians. 4.30, Concert by the Gera Orchestra, conducted by Heinrich Luber: Overture, Der dumme August (Graller); Holbergiana, Op. 61 (Gade); Two Airs from Die Folkunger (Kretschmer); Waltz, Op. 25 (Fuchs); Selection from Don Cesar (Dellinger). 5.30, Review of Books; Man and Machinery. 5.50, Market Prices, Weather, and Time. 6.0, Young Germans—a Literary and Musical Sequence (arranged Heinz Schäfer). 6.45, Talk on the Physiologist Johann Müller, for the Seventy-fifth Anniversary of his Death. 7.0, Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen).** 8.0, Emil Mathieu: Song Recital by Lula Mysz-Gmeiner (Contralto), with the Composer at the Pianoforte. 8.30, Reading: The Seventy-year-old Arno Holz (Hans Harksen). 9.0, News Bulletin. 9.10, Concert by the Leipzig Symphony Orchestra, conducted by Carl Schuricht: Overture, Donna Diana (Reznicek); Symphonic Poem, Les Préludes (Liszt); Symphonic Poem, Death and Transfiguration, Op. 24 (R. Strauss); Till Eulenspiegel's Merry Pranks, Op. 28 (R. Strauss). 10.45, News Bulletin. 10.30, Talk by Kurt G. Sell: What People are talking about in America (on Gramophone Records). 10.45 (approx.), Gramophone Concert of Popular Music. 11.30 (approx.), Close Down.

LINZ. See **Vienna.**

LJUBLJANA

122 kc/s, 574.7 metres; 7 kW.—5.30 p.m., Quintet Concert. 6.30, Topical Talk. 7.0, French Lesson. 7.30, Talk on Geology. 8.0, Programme relayed from **Belgrade.** 9.0, Quintet Concert. 10.0, Time and News. 10.20 (approx.), Close Down.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—11.30 p.m., Popular Music. 11.45 (in an interval), Radio Chronicle. 12.35 a.m. (Saturday), Answers to Correspondence. 12.40, Spanish-American Talk. 12.45, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ1, 707 kc/s, 424.3 metres; 2 kW.—8.0 p.m., Chimes, Exchange Quotations, Radio Journal and Musical Programme. Interlude Programme by Ramon Gomez de la Serna. 9.15, News and Political Review. 9.30 to 10.30, Interval. 10.30, Chimes, Time and Political Review. 10.45, Symphony Concert on Gramophone Records: Overture, Coriolanus (Beethoven); Prelude and Death of Isolde from Tristan und Isolde; Symphony in G Minor (Mozart); Ein Heldenleben (R. Strauss). 12.45 a.m. (Saturday), News and Programme Announcements for Listeners Abroad. 1.0, Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW. 6.5 p.m., Brahms Centenary Concert by the Station Orchestra, conducted by D. Dyk. Soloist, J. Actardiev (Violin). Violin Concerto in D, Op. 77. 6.45, Light Music on Gramophone Records. 7.0, See **Prague.** 7.10, Sports Notes. 7.25, See **Brno.** 10.0, See **Prague.** 10.15 (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

533 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres,** and **Nürnberg, 1,256 kc/s, 239 metres.**—4.30 p.m., Concert, conducted by Erich Kloss. Overture, La finta semplice (Mozart); Andante and Minuet from the Second Symphony (Haydn); Selection from The Valkyries (Wagner); Ständchen (R. Strauss); Little Ida's Flowers (Kirnau); Spanish Serenade (Welsen); Intermezzo from I quattro Rusteghi (Wolf-Ferrari); Polish Dance (Scharwenka). 5.45, Talk: Gymnastics in Modern Germany. 6.5, Talk: The Body Roman Empire and the German Nation. 6.25, Time, Weather and Agricultural Prices. 6.35, Schrammel Trio Concert. 7.0, Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen).** 8.0, Rambling—a Concert by the Small Station Orchestra, conducted by Erich Kloss. Soloists: Martha Martensen (Soprano) and Richard Hellriegel (Baritone). 8.45 (from **Kaiserslautern**), Choral Concert by Young People. 9.40, Symphony Concert by the Station Orchestra, conducted by Hans Winter. Overture, Iphigenia in Aulis (Gluck); The Fifth Symphony in C Minor (Beethoven). 10.20, Time, Weather, News, Sports Notes, and Traffic Report.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 816 kc/s, 365.8 metres; Hamar, 536 kc/s, 522 metres; Notodden, 671 kc/s, 447.1 metres, Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—5.0 p.m., Popular Music on Gramophone Records. 5.30, Agricultural Talk. 6.0, French Lesson. 6.30, Song Recital by Ruth Stabell (Soprano): Führ mich Kind, nach Bethlehem (Wolf); So willst du des Armen (Brahms); Melody (Chopin); Two Songs (Grieg): I Vagedidan (Johansen). 7.0, Announcements, Weather and News. 7.30, English Lesson. 8.0, Time. 8.1, Symphony Concert by the Philharmonic Orchestra, relayed from the Logen Hall: Conductor: Odd Grüner Hegge; Music for String Orchestra (Sparre Olsen); Petite Suite, Circus Pictures (P. Hall); Symphonic

Poem, Les Préludes (Liszt); Variations and Fugue on a Theme by Mozart (Reger). **9.40,** Market Prices, Weather, and News. **10.0,** Topical Talk. **10.15,** Swedish Songs to the Lute and Recitations by Torkel Scholander. **10.45** (approx.), Close Down.

ÖSTERSUND.—See **Stockholm.**

PALERMO

559 kc/s, 542 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Nites, Tourist Report, Agricultural Notes, Report of the Royal Geographical Society, and Giornale Radio. **8.20,** Popular Music on Gramophone Records. In an interval at **8.30,** Time and Announcements. **8.45,** L'Elisir d'amore—Opera (Donizetti). In the intervals, Talk and Announcements. **10.55,** News.

PARIS

EIFFEL TOWER, Call FLE, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (preliminary and 5-dot Signals). **6.45 p.m.,** Theatre Review. **7.0,** Le Journal Parlé. **8.20,** Weather Report. **8.30,** Musical and Literary Programme for Young People. **9.15,** Orchestral Concert, conducted by Flament. Soloists: M. Marchesini (Cello) and R. Bas (Violin); Selection from Manon Lescaut (Puccini); Violin Solo, A Fête in Aranjuez (Demerssemann); 'Cello Solo, Dans les Champs (Brusselmans); Loin du Village (Goubier); Juegos (Turina). **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Sponsored Talk. **7.10,** Popular Music on Gramophone Records. **7.50,** Review of the Week. **8.0,** Talk on Music. **8.15,** Interval. **8.30,** Les cent Vierges—Opera in Three Acts (Lecocq). **10.30,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Gramophone Records: Los Bandelileros (Volpati); Selection from Boccaccio (Suppé); Serenade (Drdla); Fantasia on a Neapolitan Air (Genin). **8.0,** Press Review and Weather. **12 Noon,** Jewish Talk. **12.30 p.m.,** Gramophone Concert: Procession, from The Queen of Sheba (Gounod); Selection from Maître Pathelin (Bazin); Entr'acte Symphonique (Messidor); Arioso (Delibes); Navarra (Albeniz); Monastery Bells (Lefebure-Wely); Harvesters' Song (Mendelssohn); Choral Pieces: (a) Vivat Flamand, (b) La Retraite. **1.0,** Exchange, News, and Weather. **1.5,** 'Cello Recital by Maurice Eisenberg: Sonata (Sammartini-Salmon); Largo (Vivaldi); Sicilienne (Fauré); Piece in C Sharp Minor (Boulanger); Spanish Dance (Granados-Casals). **1.30,** Exchange Quotations. **1.35,** Gramophone Concert: Le pauvre Laboureur (Tiersot); Melody in F (Rubinstein); A Night on the Bare Mountain (Mussorgsky); An American in Paris (Gershwin); French Military March (Saint-Saëns). **3.45,** Exchange and Market Prices. **4.30,** Elementary English Lesson. **6.10,** Agricultural Talk. **6.30,** Review of New Books. **6.50,** Insurance Societies' Report. **7.0,** Talk: Great Days of the French Revolution—the 20th June, 1792. **7.20,** Gramophone Concert: Overture, Les Cloches de Corneville (Planquette); Melody (Hauley); Ay, Ay, Ay (Friere); Selection from Moineau (Beydts); Fantastique (Misraki); Partir avec vous (Borel-Clerc); Je ne t'aime plus (Cazès-Cynamé); C'est Rosalie (Szulc). **8.0,** Talk: Three Months in Bolivia. **8.30,** News, Weather, and Sports Notes. **8.40,** Gastronomic Review. **8.45,** Don Cézar de Bazan—Play (Dumanoir-Dennery). **9.15** (in an interval), Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC, KDKA, 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK on 68.86 metres and 25.27 metres.—5.0 to 6.0 p.m.,** Music Appreciation Hour—Walter Daurosch Conducting, from New York. **10.0,** Talk by Dr. Emlyn Jones. **10.10,** Business News. **10.15,** S.A.I. Musicale-Carnegie Tech Chapter. **10.30,** Weather Report. **10.31,** Market Reports. **10.45,** Programme to be announced. **11.0,** Muskingum College Music Clubs. **11.15,** Dick Daring. **11.30,** The Singing Lady, from **New York. 11.45,** Little Orphan Annie. **12 Midnight,** Our Daily Food—The Story of Food, by Hendrik van Loon, from **New York. 12.15 a.m. (Saturday),** Time Signal. **12.16,** Weather Report. **12.17,** Teaberry Sport Review. **12.22,** Press News Reeler. **12.29,** Temperature Report. **12.30,** Programme to be announced. **12.45,** To-day's News, by Lowell Thomas, from **New York. 1.0,** Pepsodent Amos 'n' Andy, from **New York. 1.15,** Adventures of Aunt Lulu, **KDKA** Players. **1.30 to 5.0, New York** Relay. **1.30,** Five Star Theatre—Charlie Chan. **2.0,** Nestle's Programme. **2.30,** Time Signal and Adventures in Health. **2.45,** Howard Thurston—the Magician. **3.0,** The First Nighter. **3.30,** Armour Programme: **4.0,** Dorothy Fields and Jimmy McHugh. **4.15,** Vic and Sade. **5.0,** Time Signal. **5.1,** Teaberry Sport Review. **5.11,** Temperature Report. **5.12,** Weather Report. **5.13,** KDKA Artist Bulletin. **5.15,** Press Last Minute News Flashes. **5.20,** Cora Williams Hines (Contralto). **5.30,** Jack Pettis and his Orchestra. **5.58,** KDKA Artist Bulletin. **6.0,** Cotton Club Orchestra, from **New York. 6.30,** Time Signal and Goodnight.

PORSGRUND.—See **Oslo.**

APRIL 28th FRIDAY *continued*

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** See **Brno. 4.55,** Talk: How to build a Family House. **5.5,** Concert of French Music by the Ondricek Quartet: String Quartet in F (Ravel); Pianoforte Quartet, Op. 30 (Chausson). **6.5,** Agricultural Report. **6.15,** Talk on Nursing. **6.25,** News in German. **6.30,** German Transmission: Readings. **7.0,** Chimes. **7.1,** News Bulletin. **7.10,** Talk: Military Defence. **7.25,** See **Brno.** In the interval at **9.0,** Time Signal. **10.0,** Time Signal. **10.1,** News Bulletin. **10.15** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.—6.0 p.m.** (from **Geneva**), Talk for Young People. **6.15** (from **Geneva**), Reading for Children. **6.30** (from **Geneva**), Talk: Geographical Maps. **7.0 to 10.0,** Programme from **Lausanne. 7.0,** Weather and News. **7.30,** Talk, with Gramophone Illustrations. **8.0,** 'Cello Recital. **8.25,** L'autre Fils—Comedy in Three Acts (Pierre Decourcelle). **10.0,** News and Weather. **10.10,** Talk: The Work of the League of Nations. **10.30** (approx.), Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—**6.30 p.m.,** Latvian Lesson. **7.0,** Weather Report. **7.5,** Symphony Concert, conducted by J. Medins: Divertimento, Op. 67 (Graener); Symphony in C (André); Violin Concerto No. 3 in B Minor (Saint-Saëns); Introduction to The Sunken Bell (Zoellner); Suite from Izeyl (Pierné). In the interval at **8.0,** News. **9.0,** Weather and News. **9.30,** Musical Programme. **10.30** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.—1.0** (approx) **to 2.15 p.m.,** Orchestral Concert. In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.0** (approx.), Violin Recital by Nathan Milstein, relayed from the Royal Academy of Saint Cecilia. **7.0 (Naples),** shipping and Sports Notes. **7.10,** Agricultural and Dopolavoro Notes. **7.20,** Giornale Radio. **7.30,** Sports Notes and Tourist Report. **8.0,** Time and Announcements. **8.5,** Report of the International Institute of Agriculture (in Italian, French, English, German and Spanish). **8.30,** Reading. **8.45,** Variety Concert. Part I: Violin Recital by Arrigo Serato. Part II: Orchestral Concert. La Carnaval des Animaux—Suite for Orchestra (Saint-Saëns), with Pianoforte obbligato. Overture, The Thieving Magpie (Rossini). In the interval, Il vestito verde scuro—Comedy in One Act (de Stefani). News after the Programme.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** and by **W2XAD** (see Short-Wave List).—**8.30 to 9.45** (approx.), **New York** Relay. **8.30,** Muted Strings. **8.45,** Three Shades of Blue—Male Trio. **9.0,** Sonata Recital. **9.15,** Famous Loves. **1.0 a.m. (Saturday),** New Kenmore Orchestra. **1.15,** Stock Reports. **1.30,** Frank and Gene (Songs). **1.45,** The Goldbergs—Comedy Sketch, from **New York. 2.0,** Cities Service Concert, from **New York. 2.30,** WGY Programme. **3.0,** Best Foods Musical Store, from **New York. 3.30,** Pond's Programme, from **New York,** followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.—12.28 p.m.,** Time Signal from Neuchâtel Observatory. **12.30,** Weather and News. **12.40,** Concert by the Small Station Orchestra. **1.35,** Weather and Exchange. **1.40 to 3.30,** Interval. **3.30,** Concert of Light Music by the Radio Orchestra. **4.30** (from **Zürich**), Programme for Children. **5.0** (from **Zürich**), Gramophone Records of Variety Music. **5.30,** Weather Report. **5.35 to 6.30,** Interval. **6.30,** (from **Berne**), Illustrated Talk: Characteristic Exclamations used in Everyday Life. **7.0,** Time, Weather, Market Prices, Tourist Bulletin and Sports Forecast for Sunday. **7.20** (from **Berne**), Talk: At the Grave of Heinrich Federer. **7.50,** Music by the Radio Orchestra. **8.10** (from **Berne**), Popular Programme with Yodels and Songs and Items in Dialect. **9.30,** Weather and News. **9.40** (from **Berne**), Chamber Music. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.—5.5 p.m.,** Light Music. **5.25,** Reading. **5.45,** Talk on Spring Flowers. **5.55,** Popular Music on Gramophone Records. **6.45,** Talk. **7.15,** Weather and News. **7.30,** Talk on Foreign Politics. **7.50,** Song and Pianoforte Recital by Lisbeth Granander and Vivan Wennberg, relayed from **Uppsala, 662 kc/s, 453.2 metres. 8.15,** Talk. **9.45,** Weather and News. **10.0,** Orchestral Concert of Scandinavian Music. Polonaise (Berg); Böljebyvals (Peterson-Berger); Poem (Svensson); With Violin and Clarinet (Juel-Fredriksen); Krolls Ballklänge (Lumbye); Crescendo (Lasson); Dance Humoresque (Palmgren); Romance (Sibelius); Two Movements from the Suite ancienne (Halvorsen). **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Light Music on Gramophone Records. **12.15 p.m.,** Dance Music on Gramophone Records. **12.45,** News. **1.0,** Time and Exchange. **1.5,** Dance Music on Gramophone Records. **2.0 to 4.45,** Interval. **4.45,** Talk. **5.0,** Orchestral Concert, conducted by Roskam: March, Gigerl (J. F. Wagner); Waltz, Le Retour du Printemps (Waldteufel); Overture, Les Cent Vierges (Lecocq); Selection from Martha (Flotow); Violin Solo: Meditation from Thaïs (Massenet); Minuet (Moszkowsky); Rigaudon des petits Pages (Delaunay); Selection from Der Obersteiger (Zeller); March, Wiener Vogel (Schlogel). **6.0,** Trio Concert, relayed from **Lille, 1,130 kc/s, 265.4 metres. 7.0,** Topical Talk in German. **7.15,** Light Music on Gramophone Records. **7.30,** News in French. **7.45,** Popular Music on Gramophone Records. **8.15,** News in German, Lottery Results, and Announcements. **8.30,** Orchestral Concert, conducted by M. de Villars. Soloists: Louise Mancini (Songs); Fernand Fanfard (Tenor) and M. Gillig (Bass). Part I: Music by Gluck. Part II: Act One of The Valkyries (Wagner). In the interval at **9.30** (approx.), News in French. **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW; and **Freiburg, 527 kc/s, 570 metres.—12 Noon,** Military Band Music on Gramophone Records. König-Karl-Marsch (Unrath); Schatz, mein Schatz, reise nicht so weit von mir (Blumel); Revue-Marsch (Reckling); Alte Kameraden (Teike); Der Gott, der Eisen wachsen liess; Mein Regiment, mein Heimatland; York March (Beethoven); Märkische Heide (Ludwig); Haltet aus im Sturmgebraus (Blume); Deutsches Notgebet (Blume); Wie herrlich leuchtet mir die Natur (Blume); Grossherzog von Baden (Hafele); Quick March on Motives from Quadrilles (Joh. Strauss, Sen.); Unter Stahlhelm-Fahnen (Schrobitz); Stahlhelm-Sportmarsch (Wagner); Marsch der freiwilligen Jäger 1813; Neu-Schwanstein Marsch (Seifert); Nur am Rhein, da Möcht ich leben (Blume); Kaiser-Friedrich-Marsch (Friedemann); Saxon March (Wilke); Unsere Marine (Thiele). In the Intervals, Two Gramophone Records of Franz Baumann: (a) Es tagt (Gansser-Bruckmann). (b) Dem Führer (Gansser-Overdyck). **1.30,** Concert from Langenberg. **2.0,** Concert arranged by the Post Office. **2.30,** Advanced English Lesson. **3.0 to 4.15,** Interval. **4.15** (from **Mannheim**), Suggestions for a Sunday Excursion. **4.30,** Concert from Munich. **5.30,** Time, Weather and Agricultural Notes. **6.0,** (from **Freiburg**), Medical Talk: Care of the Feet. **6.25,** Talk by Dr. Richard Reinger: An Eternal Testimony to German Heroism. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from Frankfurt. **8.0,** Der Freischütz (The Seventh Bullet)—Opera in Three Acts (Weber). **10.15,** Time, News, Weather, Programme Announcements and Sports Notes. **10.40,** Talk by Kurt G. Sell: What People are talking about in America, relayed from America. **10.55,** Serenade from Frankfurt. **12 Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—**6.0 p.m.,** News Bulletin. **6.15,** Accordion Music. **6.30,** Fingal's Cave (Mendelssohn), by a Symphony Orchestra. **6.45,** Chansonnettes. **7.0,** Talk: The Causes and Treatment of Diabetes. **7.15,** Racing Results, Market Prices and News. **7.25,** Local News Bulletin. **7.30,** Instrumental Music. **7.45,** Opera Music. Melodies from: (a) Thérèse (Massenet), (b) Si j'étais Roi (Adam), (c) The Pearl Fishers (Bizet). **8.0,** Music by a Viennese Orchestra. **8.30,** Opera Music: Arias from: Faust (Gounod), Le Roi d'Ys (Lalo), La Favorita (Donizetti). **8.45,** Violin Solos: (a) Spanish Serenade (Chaminade), (b) The Storks (Sarasate), (c) Le Zéphir (Hubay). **9.0,** The Practical Corner. **9.5,** Music Hall Programme. **9.30,** Opera Music. Triumphal March from Tannhäuser (Wagner); Selection from Rigoletto (Verdi); Selection from The Huguenots (Meyerbeer); Entr'acte from Act III of Carmen (Bizet); Prelude to Cavalleria Rusticana (Mascagni); Selection from Lakmé (Delibes). **10.0,** Chansonettes. **10.15,** North African News. **10.30,** Popular Concert for Listeners in Morocco. **11.0,** Sound Film Music. **11.15,** Dance Music. **11.30 to 12 Midnight,** Programme in English by the I.B.C. W. Brown-Constable announcing. **11.30,** Sentimental Programme: Somewhere a Voice is calling (Tate); Indian Love Lyrics (Woodforde-Finden); Selection from Cavalcade (Coward); Little Grey Home in the West (Lohr); Roses of Picardy (Haydn Wood); Sweethearts of Yesterday (arr. Hylton); A Perfect Day (Jacobs-Bond). **11.57,** I.C.B. Good-night Melody. **12 Midnight,** News, Weather and Announcements. **12.5 a.m. (Saturday),** Music by an Argentine Orchestra. **12.15,** Instrumental Solos. **12.30** (approx.), Close Down.

TRIESTE

124 kc/s, 247.7 metres; 10 kW.—**6.35 p.m.** till Close Down. See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 599 kc/s, 500.8 metres.—6.35 p.m.,** Giornale Radio and Agricultural and Dopolavoro Notes. **7.0,** Time, Report of the Royal Geographical Society, and Popular Music on Gramophone Records. In the interval from **7.20 to 7.45,** Giornale Radio. **8.0,** Announcements, Weather, and Gramophone Records (contd.). **8.45,** Notes on Art. **9.0,** Symphony Concert, conducted by Rito Selvaggi. Talk in the interval. **11.0,** Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and **5,969 kc/s, 50.26 metres** (Evening); 10 kW.—**11.0 to 11.15 a.m.,** Religious Information in German. **8.0 to 8.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.—5.35 p.m.,** Popular Music on Gramophone Records. **5.55,** Tourist Report. **6.10,** Talk: The Austrian Workers' Gymnastics and Sports Training School in Vienna. **6.25,** Sports Report. **6.40,** Theatre Talk. **6.55,** Talk: The Importance of the Consumer in Industry. **7.45,** Time, Weather, and Programme Announcements. **7.50,** Orchestral Concert: Overture, Der Bettelstudent (Millöcker); Waltz from The Rose of Stambul (Fall); Potpourri, Alles singt mit (Reckten-wald); Intermezzo from Nalli (Delibes); Heinzelmännchen (Hellmesberger); Song and Czardas (Lehár); Wunderbar ist der Duft deines Haares (Sieczynski); Potpourri of Viennese Songs (Drescher); March, St. Louis (Komzak). **8.50,** Otto zur Linde reads from his own Works, with Introductory Talk. **9.0,** Concert by the Vienna Symphony Orchestra, conducted by Oswald Kabasta; Soloist: Riccardo Odnoposov (Violin). **10.20,** News Bulletin. **10.30,** Dance Music, relayed from the Café de Paris.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Light Music on Gramophone Records. **1.20,** Weather Forecast. **1.25 to 3.10,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Aviation Report and Anti-Gas Drill. **3.30,** Talk on Maritime and Colonial Affairs. **3.35,** Review of Periodicals. **3.50,** Light Music on Gramophone Records. **4.20,** Educational Talk. **4.40,** Talk on Hygiene. **5.0,** Concert by the State Police Band: Conductor, A. Sielski: Overture, La Belle Hélène (Offenbach); The Nut Cracker Suite (Tchaikovsky); Selection from Madame Butterfly (Puccini); Romance in F (Rubinstein); Mazurka (Lewandowsky); March, Florence (Fucik). **5.55,** Programme Announcements. **6.0,** Biological Talk. **6.20,** News. **6.25,** Light Music relayed from the Café Italia. **7.0,** Miscellaneous Items. **7.20,** Agricultural and Foreign Press Review, relayed from **Wilno, 533 kc/s, 563 metres. 7.30,** Talk: In Mid-Ocean. **7.45,** Radio Journal. **8.0,** Talk on Music. **8.15,** Symphony Concert by the Warsaw Philharmonic Orchestra, conducted by G. Fitelberg, relayed from the Philharmonie; Soloist, M. Orlow (Pianoforte): Symphony No. 2 (Dukielsky); Pianoforte Concerto No. 2 in C Minor (Rachmaninov); Suite (Kondracki); Pianoforte Concerto in C Minor (Mozart); Symphonic Triptych (Labunsky). In the interval, Reading. **10.40,** Sports Notes. **10.45,** Radio Journal. **10.55,** Aviation Weather Report and Police Notes. **11.0,** Dance Music relayed from **Cracow, 959 kc/s, 312.8 metres.**

ZURICH.—See **Schweizerischer Landessender.**

SATURDAY

APRIL THE TWENTY-NINTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Running commentary on the Cup Final, from Wembley. Norman O'Neill orchestral and vocal programme.
LONDON REGIONAL	Speeches from the Royal Academy banquet.
NORTH REGIONAL	Relay from the Argyle Theatre, Birkenhead.
WEST REGIONAL	"Uncle Tom Cobleigh's Birthday Party," a Devonshire dialect play by G. Scantlebury.
SCOTTISH REGIONAL	Composite programme of songs and sketches.
BELFAST	Two plays: "The Lawful Lodger," by L. A. Pavey, and "The Bag of Gold," by W. Moore.

ABROAD

BERO-MUNSTER	8 p.m. Opera: "Orpheus" (Gluck), from the Municipal Theatre, Zurich.
COPENHAGEN	8 p.m. Viennese dance music, by the Radio Orchestra, conducted by F. Mahler.
KONIGSWUS-TERHAUSEN	7 p.m. Hans Pfitzner concert, conducted by the composer (relayed by other German stations).
LYONS LA DOUA	8.30 p.m. Operetta: "The Rose of Stamboul" (Fall) (relayed from **Ecole Supérieure, Paris**).
PALERMO	8.45 p.m. Operetta: "Frasquita," by Lehar.
PITTSBURGH	2.15 a.m. (Sunday). The Boston Symphony Orchestra (from New York).
ROME	8.45 p.m. Operetta: "The Drum Major's Daughter," by Offenbach.
STRASBOURG	6.30 p.m. Song and pianoforte recital: Old and Modern Music.

ATHLONE

725 kc/s 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. **6.15,** Popular Music on Gramophone Records. **7.20,** News Bulletin. **7.30,** Talk on Dry Fly Fishing. **7.45,** Gaelic Talk. **8.0,** The Station Orchestra. **8.30,** Talk on Shakespeare's Macbeth. **9.0,** Talk on the Spring Show. **9.15,** Soprano Solos by Mollie Phillips. **9.30,** Violin Duets by Mrs. Larchet and Mrs. Lange. **10.0,** The Station Orchestra. **10.30,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW.—7.0 p.m., Programme for Children. **8.0** Request Gramophone Concert. **8.30,** Exchange Quotations and Catalan Grammar Lesson. **9.0,** Light Music on Gramophone Records, followed by News Bulletin. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange, and Market Prices. **10.5,** Concert by the Station Orchestra: Spanish March, Mi'rida (Giuliani); Introduction to The Fair at Sorochinsk (Mussorgsky); A la memoria d'un bébé (Turina); Invitation to the Waltz (Weber). **10.30,** Relay from **Madrid (EAJ7). 12 Midnight** (in an interval), News Bulletin.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—8.0 p.m., Agricultural Notes, Tourist Report and Dopolavoro Notes. **8.20,** Giornale Radio and Weather. **8.30,** Time and Announcements. **8.35** (approx.), Concert of Songs and Operetta Music. In the interval, Talk on Art and Announcements. **10.30,** Popular Music on Gramophone Records. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—3.0 p.m., Request Programme on Gramophone Records. **4.0,** Folk Songs. **4.30,** Orchestral Concert: Overture, Oberon (Weber); Ballet Suite, from La Source (Delibes); Selection from The Tales of Hoffmann (Offenbach); Waltz Song from the Sound Film Kaiserwalzer (Joh. Strauss-Dostal); Notre doux rêve (Ackermans); Gallop, Cluman Attaque (Bohm). **6.55,** Time. Programme Announcements and Talk. **7.40,** Gramophone Records of Variety Music. **7.50,** Talk on the following Transmission. **8.0,** Opera Relay from the National Theatre, Zagreb. In an interval at **9.30,** News. After the Relay, Dance Music on Gramophone Records.

BERLIN

KONIGS WUSTERHAUSEN, 183.5 kc/s, 1,635 metres; 60 kW.—2.0 p.m., Gramophone Concert from **Berlin (Witzleben). 3.0,** Handwork for Children. **3.30,** Weather and Exchange Quotations. **3.45,** Review of Periodicals. **4.0,** Reading: War Experiences: War on Board the Emden. **4.30,** Concert from **Hamburg. 5.10,** Weekly Review. **6.0,** A Poem. **6.5,** Sonata for Viola and Pianoforte (Friedrich Kiel). **6.30,** Talk: From Trades Union Secretary to Working-Men's Leader. **6.50,** Weather and Wireless Notes. **7.0,** Transmission for all German Stations—Hans Pfitzner Concert, conducted by the Composer; Soloist, Hans Reinar (Baritone): Overture, Käthchen von Heilbronn; Zorn, Op. 15, No. 2; Klage, Op. 25, No. 2; Court Festival and Melody of Love from Das Herz; Symphony No. 8 (Beethoven). **8.0,** In the Forest and on the Heath—Variety Programme with Sepp Summer, Eugen Rex, and the Ferdi Kaufmann Orchestra. **10.0,** Weather, News and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Serenade from **Munich. 12 Midnight** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—4.0 p.m., Orchestral Concert by the Berlin Concert Society; Conductor, Clemens Schmalstich. **5.0,** Talk on Cycling. **5.10,** Concert (contd.): Rhapsody No. 1 (Liszt); Selection from La Bohème (Puccini); Waltz, Es war in Wien (Schattmann); Minuet (Boccherini); Minuet Balzoni); Overture, Die Fledermaus (Joh. Strauss). **6.0,** Talk by Hermann Weinreich: Manfred Kyber. **6.15,** Old Musical Instruments—Radio Report on the Collection of Musical Instruments in the Academy of Music. **6.40,** Announcements. **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0** (approx.), See **Vienna. 10.0,** Weather, News and Sports Notes, followed by Dance Music from the Eden-Pavillon. **12.30 a.m. (Sunday),** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER.—See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—6.30 p.m., Radio Journal relayed from **Paris (Ecole Supérieure), 671 kc/s, 447.1 metres. 7.30,** Sports Notes. **7.45,** Talk. **8.0,** News, Exchange, Market Prices, and Lottery Results. **8.5,** English Lesson. **8.20,** News. **8.30,** Popular Music on Gramophone Records. **9.0,** Two One-Act Comedies: (a) La Petite Sardine de Marseille (Gril), (b) Le Quatrième (Piéchaud).

BRATISLAVA

878 kc/s, 342 metres; 35 kW.—5.0 p.m., Pianoforte Recital by P. Pistelak. **5.25,** Legal Discussion. **5.50,** Popular Music on Gramophone Records. **6.5,** Talk: Old French Legends. **6.15,** Slovak Song Recital. **6.40,** Talk for Women. **6.55,** News. **7.0,** See **Prague. 7.25,** See **Brno. 8.0,** See **Moravská-Ostrava. 10.0,** See **Prague. 10.15,** Concert of Light Music by the Station Orchestra, conducted by F. Dyk. **11.30** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres, 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—1.5 p.m.,** Weather for Farmers. **1.10,** Popular Music on Gramophone Records. **1.45,** Time, Weather, News, and Exchange Quotations. **2.5,** Popular Music (contd). **2.45,** Programme arranged by the Post Office with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Weekly Film Review. **4.0,** Talk: Contemporary German Authors. **4.30,** Concert by the Station Orchestra, conducted by Bruno Janz; Soloist, Carl Grenlich ('Cello). **5.30,** A Discussion with Students: The Academic Year. **6.0,** Concert by the Station Orchestra, conducted by Franz Marszalek: Suite, Aus dem Morgenlande (Heuberger); Suite, Old China (Niemann). **6.30,** Topical Talk. **6.50,** News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** See **Vienna. 10.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **10.30,** Light Music on Gramophone Records. **11.30,** See **Leipzig. 1.30 to 3.0 a.m. (Sunday),** Programme (also relayed by **Zeesen** on **31.38 metres. 1.30,** German Authors whom we do not wish to forget—Literary Programme. **2.20,** Vivat academia—a Collection of German Student Songs (Fritz Koschinsky) by Soloists and the Station Choir and Orchestra, conducted by Ernst Prade. **3.0 a.m.,** Close Down.

BRNO

1,076 kc/s, 279 metres; 11 kW.—5.0 p.m., German Transmission: News followed by Quartet Concert. **7.0,** See **Prague. 7.10,** Talk. **7.25,** Brass Band Concert of Popular Music. **8.0,** See **Moravská-Ostrava. 10.0,** See **Prague. 10.15,** See **Bratislava. 11.30** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R.; 590 kc/s, 509 metres; 15 kW.—12 Noon, Concert by the Little Radio Orchestra, conducted by P. Leemans: Overture, Martha (Flotow); Waltz, Wienerblut (Strauss); La voix des cloches (Luigini); Selection from Mignon (Thomas); Violin Solo, Short Story (Gershwin-Dushkin); Hungarian Dances Nos. 2 and 5 (Brahms); Selection from Frederica (Lehár); Foxtrot, Un p'tit peu d'amour (Abraham). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by Mickey's Club Jazz Attraction. **4.45,** Talk: The Manchurian Question at Geneva. **5.0,** Concert by the Little Station Orchestra, conducted by Leemans: Overture, Jean de Paris (Boieldieu); Petite Suite (Kalkmann); Selection from Le Jongleur de Notre Dame (Massenet); Flute Solo, Bulbul (Poldini); Selection from Mam'zel le Sourire (Lachanme); Slav Potpourri, Solojanka (Wilke). **6.0,** Talk: In the Radio World. **6.15,** Gramophone Concert: Overture, Abu Hassan (Weber); Aria from Acis and Galathea (Handel); Bourrée (Bach); The Clock Symphony (Haydn). **6.30,** Chamber Music: Trio in C (Brahms); Trio (Francis de Bourgignon). **7.15,** Talk: Domestic Science. **7.30,** Review of International Affairs. **8.0,** Gramophone Records: Overture, Le Cid (Thomas); La Campanella (Paganini-Liszt); Sérénade à Ninon (Delibes); Arlequin (Lalo). **8.15,** La Paix d'Aristophane—Play (Théo Fleischman), Music by Franz André. **9.15,** Gramophone Records: Colinette (Wekerlin); Sarabande and Tambourin (Leclair); Märchenerzählungen 3 and 4 (Schumann); Prelude (Prokoviev). **9.30,** Concert by the Radio Orchestra, conducted by M. Franz André. Soloist, M. Mordant (Violin). Hungarian March (Berlioz); Waltz, Wienerblut (Strauss); Violin Solos: (a) Zigeunerweisen (Sarasate), (b) Polonaise (Wieniawsky); Trumpet Solo, Jack in the Box (Eric Satie); Jazz in the Zoo (Basilewsky); Dancerics (Gervaise). **10.0,** Le Journal Parlé. **10.10,** Gramophone Concert: March (Engelmann); Selection from La Fille de Madame Angot (Lecocq); Song, A. B. C (Cosentino); Scarf Dance (Chaminade); Pierrette (Chaminade); Pasodoble, Naranjos (Grant); Intermezzo, Der Gaukler (Robrecht); Air varié (Wittmann); Selection from The Rose of Stamboul (Fall). **10.40,** Concert by the Paul Moreaux Orchestra, from the Membine Hall, Antwerp.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**12 Noon,** Concert by Mickey's Club Jazz Attraction, conducted by L. Langlois. **1.0 p.m.,** Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans. Soloist: M. Doulicz (Pianoforte). Spanish Step, Picador (Fall); Potpourri, klänge aus Rumanien (Danber); Joujou d'amour (Demaret); Pianoforte Solos (Mayerl): (a) Sleepy Piano, (b) Antiquary; Tango, Nous dirons adieu (Moretti); Selection from Bouche à bouche (Yvain). **5.0,** Concert by the Radio Orchestra, conducted by Franz André: Marcl (Gilson); Goldschmieds Hämmerlied (Eilenberg); La paloma (Yradier-Weninger) Waltz, Estudiantina (Waldteufel); Selection from Frederica (Lehár); Selection from No No Nanette (Youmans); Melody (Colborn) Schwarzwälder Spielnhr (Richter); Babillage d'oiseaux (Gagnaire); Egyptian March (Strauss). **6.0,** Sonata for Flute, Harp and Viola (Debussy) on Gramophone Records **6.15,** Talk: The Duke of Alba. **6.30,** Gramophone Concert: Entr'acte from Rosamunde (Schubert); The Brandenburg Concerto (Bach); Concerto for Violin and Orchestra (Tchaikovsky). **7.15,** Talk: The Belgian Textile Industry. **7.30,** Film Notes. **8.0** Recital on Two Pianofortes by Sylvain Hamy and René Sinclair. **8.30,** Gramophone Records: Overture, Prometheus (Beethoven); Italian Symphony (Mendelssohn) **8.45,** Recitations. **9.0,** Concert by a Balalaika Orchestra and a Russian Choir. Conductor: Vladimir Pardigon. Overture and Mazurka from A Life for the Czar (Glinka) Choir; Three Songs; Turkish March (Mussorgsky); Valse fantasia (Glinka); Choir Four Ukrainian Songs; Dance of the Tumblers from The Snow Maiden (Rimsky Korsakov); Russian Dance, Kamarinskaya (Glinka); Gopak from The Fair at Sorochinsk (Mussorgsky). **10.0,** Journal Parlé **10.10,** Dance Music on Gramophone Records **10.30,** Concert by the Max Alexy Orchestra, relayed from the Ancienne Belgique

BUCHAREST

761 kc/s, 394 metres; 12 kW.—5.0 p.m., Concert by the Station Orchestra: Overture, Don Pasquale (Donizetti); Suite from Much Ado about Nothing (Korngold); Selection from Mephistopheles (Boito); Selection from Die indische Witwe (Oscar Straus) Fantasia on Popular Czech Songs (Leopold). **6.0,** Radio Journal. **6.15,** Concert by the Station Orchestra (contd.): The Skaters' Waltz (Waldteufel); Serenade (Widor); Marionettes (Liadov); Gavatina for Violin and Orchestra (Raff); Military March (Schubert). **7.0,** Educational Talks. **7.55,** Time Signal. **8.0,** Pianoforte Solos by I. Bernfeld. **8.30,** Talk. **8.45,** M. Arnbitza —Silleur. **9.0,** Concert of Popular Music by the Fanica Luca Orchestra.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **7.45 p.m.** (approx.) till Close Down.—**6.30 p.m.,** Recital of Hungarian Folk Songs. **7.15,** The Letter Box. **7.45,** Gramophone Records of Variety Music. **8.30,** Review of Foreign Affairs. **8.45,** Concert of Operetta Music, conducted by Friedrich Friedl: Pesther Frauen (Lehár); Die Försterin (Jarno); Duet from Herbstmanöver (Kálmán); Two Songs from an Operetta (Huszka); Song from an Operetta (O. Straus); Selection from The Bird Dancer (Zeller); Der kleine Graf (Renyi); Selection from A Day in Paradise (Eysler); Song (Kálmán); Song from Frederica (Lehár); Duet from an Operetta (Butykai); Selection from Graf Rinaldo (Szirmai). **10.15,** News Bulletin. **10.30,** Concert of Gipsy Music. **11.15,** Dance Music from the Hotel Excellent.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW; and **Kalundborg, 260 kc/s, 1,153 metres; 7.5 kW.—12.0 Noon,** Time and Chimes from the Town Hall. **12.5 p.m.,** String Ensemble Concert, conducted by A. Bendix, relayed from the Wivex Restaurant. **2.0 to 2.30,** Interval. **2.30,** Gramophone Concert: Norma's Song from Act I of Norma (Bellini); Trio from Act I of Il Trovatore (Verdi); Träumerei (Schumann); Ich liebe dich (Beethoven); Ich hab' einen Mann, der mich liebt from Ball im Savoy (Abraham); I could make a Good Living at that (Lawton-Cottrell); Vocal Quartet (Lindberg). **3.0,** Programme for Children. **3.30,** Concert by the Radio Orchestra, conducted by Lanny Gröndahl; Soloist: Kaj Fossing (Songs); Overture, Halka (Moniuszko); Valse triste (Sibelius); Ballet Music from Aida (Verdi); Bergensiana (Halvarsen); Gipsy Dance from the Gipsy Suite (Coleridge Taylor); Seven Songs; Overture, Marco Spada (Auber); Selection from The Merry Widow (Lehár); Theme and Variations on the Emperor Quartet (Haydn); Dance from Blade af Aarets Billedbog (Glass); Scottish Patrol (Williams). **5.40,** Exchange and Fish Market Prices. **5.50,** Talk: A History of Birds. **6.20,** French Lesson. **6.50,** Weather Forecast. **7.0,** News. **7.15,** Time Signal. **7.30,** Review of Politics for the Month of April. **8.0,** Chimes from the Town Hall. **8.5,** Verklärte Nacht, Op. 4 (Schönberg), by the Station String Orchestra, conducted by Fritz Mahler. **8.25,** Reading. **8.40,** Concert of Viennese Dance Music by the Radio Orchestra, conducted by Fritz Mahler: Deutschmeister Jubelmarsch (Joh. Strauss); Waltz, Wine, Woman and Song (Joh. Strauss); Quadrille from The Gipsy Baron (Joh. Strauss); (Nicholls); Waltz from The Dollar Princess Minuet (Schubert); Polka (Jos. Strauss); Waltz, Morgenblätter (Joh. Strauss); Polka-Mazurka from Die schöne Polin (Millöcker); Express Polka (Joh. Strauss). **9.25,** Read-

ing. 9.45 News. 10.0, Dance Music, relayed from the Ritz Restaurant. In the interval, at 12 Midnight, Time and Chimes from the Town Hall. 12.15 a.m. (Sunday), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**12 noon,** Light Music on Gramophone Records. **12.30 p.m.,** News. **12.45,** Popular Concert. **5.30 to 7.0,** Programme in English by the I.B.C. Announcers: C. Danvers-Walker, B. McNabb and F. Lamping. **5.30,** Pianoforte and Song Recital for Tunbridge Wells and Isle of Thanet Listeners: Pianoforte Solos, (a) Seguidillas (Albeniz), (b) Prelude in C Sharp Minor (Rachmaninov), (c) Malaguena (Albeniz), (d) Liebestraum (Liszt); Song, La Danza; Pianoforte Solos: (a), Arabesque (Debussy), (b), Rondo capriccioso (Mendelssohn); Song, Santa Lucia; Pianoforte Solos: (a) Sous les Palmiers (Albeniz), (b) Rustle of Spring (Sinding), (c) Spanish Dance No. 5 (Granados), (d) Selection from Rigoletto (Verdi). **6.15,** Concert for Dover and Folkestone Listeners: The Man who broke the Bank at Monte Carlo; Two Lovely Black Eyes; The Coster's Wedding; Old Music Hall Memories; Captain Ginjah; The Galloping Major; Sweethearts of Yesterday; The Wink of the Old Glad Eye; Jean, Jean from Aber-Aberdeen; When Father papered the Parlour. **7.0,** Radio Gazette. **7.20,** News. **7.30,** Light Music on Gramophone Records. **7.45,** The Listener's Half Hour and News. **8.30,** Carillon and Song Recital, relayed from the Towers of Rouen Cathedral. **11.0** till Close Down, Programme in English by the I.B.C. **11.0,** Club Concert for Isle of Man Listeners: Overture, Maritana; The Lost Mountaineer; Brabazon; Duets: (a) Sunshine Charlie, (b) Seven Veils; Yodelling Maid; Bravest of the Brave; Duets, (a) Molly, (b) Ro-ro-rolling along; By the Blue Hawaiian Waters; Chorus, I'p in the Clouds; Coronation March. **12 midnight,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: Jolly Fellows (Volstedt); Songs: (a) The Lass from County Mayo, (b) One Hour with you; Selection from The Three Musketeers (Friml); Songs: (a) My Irish Paradise, (b) Paradise, Amoureuse (Berger). **12.30 a.m.** (Sunday), Variety Music: Ragtime Medley; Song, Always in my Heart; Sketch, The Commercial Traveller in our Street; Song, I'll never be the same; Banjo Solo, The Buffoon; Crazy Night at the Opera. **1.0,** Xylophone Solos: Jovial Jasper (Green); Aeroplane Polka (Gaston); Tarantella (Byng); Orchestra: Dance of the Raindrops (Reeves); Xylophonia (Green); Dance of the Marionettes (Gaston); Carnival of Venice (arr. Gaston). Crazy Pirouette (Frisk). **1.30,** Songs: Ah, Sweet Mystery of Life; I bring a Love Song; The Song of Songs; Orchestra: African Lament; You are my Heart's Delight; You will remember Vienna; Just two Hearts and a Waltz Refrain; Orchestra: Mama Inez. **2.0,** Dance Music by the Decolians; Can't we meet again? What more can I ask? Do you recall? Brighter than the Sun; To-night; I may never pass your Way again; Play, Fiddle, play; Horses carry Tails; This is the Rhythm for me; A Boy and Girl were dancing; Balloons; Where is this Lady? Always in my Heart; A Waltz of Long Ago. **2.57,** I.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc s, 259.3 metres; 17 kW.; **Cassel, 1,220 kc s, 245.9 metres;** and **Trier, 1,157 kc s, 259.3 metres.—6.0 p.m.,** Talk: Questions of the Day. **6.25,** Talk: The Introduction of the Reformation into Frankfurt. **6.50,** Time, Programme Announcements, Weather and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** See **Stuttgart. 10.0,** The German Almanac. **10.10,** Time, News, Weather and Sports Notes. **10.30,** Serenade from **Langenberg. 12 Midnight** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres. 4.0 p.m.,** Radio Pictures from a Youth Hostel. **4.30,** Concert by the Station Orchestra, conducted by Horst Platen. Prelude (Wartisch); Small Suite for Strings (Vogt); Selection from Lohengrin (Wagner); Rhapsody No. 1 (Liszt); Waltz, Wo die Zitronen blühn (Joh. Strauss). **5.30,** Talk: The World War. **5.55** (from **Bremen**), Talk on New Zealand. **6.25,** Concert by the Station Male Voice Quartet, Gerhard Maass (Pianoforte), and Gerhard Gregor (Pianoforte and Accordion); Symphonic Foxtrot (Gebhardt); Two Songs (Hlinak): (a) Heiratshandel, (b) Der Mühljung; Accordion Solo: Kirmes-Ländler (Niederlitz); Two Songs (Hlinak): (a) Das Gespenst, (b) Chinese Folk Song; Florette (Hentzschel). **6.50,** Weather Forecast. **7.0,** Programme for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** See **Vienna. 10.0,** Time, Weather, Announcements, Sports, and Police Notes. **10.20,** Topical Talk. **10.30,** Dance Music, conducted by Gerhard Maass.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.—11.30 a.m.,** Concert by the Königsberg Opera House Orchestra, conducted by Ludwig Leschetizky. Overture in D in Italian Style (Schubert); Prelude to the Second Act and Choral from Rienzi (Wagner); Selection from Manon Lescaut (Puccini); Waltz from Eugene Onegin (Tchaikovsky); Ballet Music from The Demon (Rubinstein); Tarantella for Full Orchestra (Liszt); Russian Sketches (Dreyer). **1.5 p.m.,** Gramophone Concert of Popular Music. In the intervals, News and Weather Reports. **2.30,** Programme arranged by the Post Office, with Gramophone Records. **3.0,** Exchange Rates. **3.30** (from **Danzig**), Programme for Children. **4.0,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Czar and Carpenter (Lortzing); Spring Suite (Nevin); Selection from The Geisha (Jones); Valse romantique (Heincke); Serenade (Padilla); Trot de Cavallerie (Rubinstein); Selection from Oberon (Weber); Overture (Czibulka). In the interval at **4.50** (from **Danzig**), Talk on Films. **5.30,** Talk: Thoughts on the New State. **6.0,** Programme Announcements for the Coming Week. **6.10,** Programme Announcements in Esperanto. **6.15,** Market Prices. **6.25,** Monthly Review. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** News Bulletin. **8.5,** Variety Programme. **10.10,** Weather, News, and Sports Notes, followed by Dance Music from **Berlin (Witzleben). 12.30 a.m. (Sunday),** Close Down.

HILVERSUM

1,013 kc s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—**12.40 p.m.** till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). **12.40,** Concert by De Notenkrakers, conducted by D. Wins. **1.25,** Organ Recital by J. Jong: Overture, The Nuremberg Doll (Adam); Dream of Love (Algra); Badinage (d'Ambrosio); Indian Canzonetta (Dvorák); Die goldene Spieluhr (Krome); The Blue Pavilion (Armandola); Der letzte Pferdeuzug (Raasch). **1.55,** Orchestral Concert: Wiener Madln (Ziehrer); A Japanese Garden (Deppen); Kikeriki (Evans); In a Hungarian Tavern (Rinesh); Tanzen auf der Alm (Fetras); The Capricious Musical Box (Fresco); Humoresque (Dvorák); Spiel, mir auf der Balalaika (Kaper); Selection from Paganini (Lehár); Bei Tag, bei Nacht (v. Knorr-Renes). **2.55,** Variety Music on Gramophone Records. **3.25,** Talk. **3.40,** Cabaret Programme. **5.10,** Talk. **5.30,** Concert by the V.A.R.A. Balalaika Orchestra, conducted by I. Powarjev. **5.40,** Song Recital by H. Marchand. **5.55,** Balalaika Concert (contd.). **6.5,** Song Recital (contd.). **6.20,** Literary Talk. **6.40,** Concert by De Wielewaal Choir, conducted by P. Tiggers, with a Talk by N. Bloemendaal. **7.10,** Concert by the Columbia Three (Accordionists): March (Bidgood); Serenade (Braga); Potpourri, Ein Walzerabend bei Suppé (Thiele); Air from Les Millions d'Arlequin (Drigo); Selection from Les Cloches de Corneville (Planquette). **7.40,** Concert by a Children's Choir, with Gramophone Interludes. **8.10,** Dramatic Programme.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**12.55 p.m.** till Close Down, Programme of the Catholic Radio Society (K.R.O.). **12.55,** Concert by the Con Brio Trio. **2.25 to 2.40,** Interval. **2.40,** Programme for Young People. **3.10,** Programme for Children. **4.40,** Concert by the De Lorenzo Accordion Band: For you, Rio Rita; Hochzeitszug in Lilliput (Translateur); Foxtrot, Marta; Waltz, Wine, Woman and Song (Strauss); Light Music on Gramophone Records; Potpourri of Opera Music; Zigeuner, du hast mein Herz gestohlen; Potpourri. **5.55,** Sports Talk. **6.10,** Concert by the K.R.O. Boys, conducted by P. Lustenhouwer. Soloist: J. Mossel (Songs). **7.50,** Talk. **8.10,** Police Notes. **8.25,** Sports Talk. **8.40,** Concert by the K.R.O. Orchestra, conducted by M. van 't Wout: Overture, Semiramis (Rossini); Byzantine Suite, Ilys (Ganne); Dutch Dance (Siep). **9.10,** News Bulletin. **9.15,** Recital on Two Pianofortes: Overture, Raymond (Thomas); Waltz, Frühlingsstimmen (Strauss); Ballet Music from Feramors (Rubinstein). **10.10,** Recitations. **10.25,** Orchestral Concert (contd.): Suite from The Sleeping Beauty (Tchaikovsky); Overture, Le belle Hélène (Offenbach). **10.55,** Pianoforte Recital (contd.). **11.10,** News. **11.15,** Concert (contd.): March, Wien bleibt Wien (Schrammel); Waltz from Gipsy Love (Lehár); Potpourri of Operetta Music (Fetras); March, Semper Fidelis (Sousa). **11.40,** Popular Music on Gramophone Records. **12.40 a.m. (Sunday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,202 kc s, 249.6 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide. News and Exchange. **8.10,** Film Review. **8.20,** Radio Concert. **9.0,** Weather and Racing Results. **9.15,** Radio Concert. **12 Midnight to 1.0 a.m. (Sunday),** Programme in English by the I.B.C. **12 Midnight,** Orchestral Concert: Waltz, Tales from the Vienna Woods (Joh. Strauss); Liebesfreud (Kreisler); The Cossack's Wedding Fête (Krier); The Skaters' Waltz (Waldteufel); Pierrette's Wedding (Jordan); Augero (Franco); Saschinka (Schirmann). **12.30 a.m. (Sunday),** Dance Music: I may never pass your Way Again; Till To-morrow; I called to say Goodnight; Street of Dreams; Young and Healthy; The Japanese Sandman; Love will find a Way; Butterflies in the Rain. **12.57 a.m.,** I.B.C. Goodnight Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Concert from **Leipzig. 12.50 p.m.,** Weather, Time and News. **1.0,** Concert, conducted by Wolf: Soloist: Elfriede Koch-Paetow (Mezzo-Soprano); March, Wenn wir einig sind (Müller-Hagen); Waltz, Mein Lebenslauf ist Lieb und Lust (Strauss); Songs: (a) Lied der Mignon (Schubert), (b) Aufenthalt (Schubert), (c) Der Schmied (Brahms), (d) Ständchen; Concert Overture, Hamlet (Gade); Suite, Schloss Durande (Niemann); An der Weser (Pressel); Selection from Madame Butterfly (Puccini); Comedy Overture, Mamsell Unnütz (Leuschner); Potpourri, Strauss bleibt Strauss (Schweichert). In the interval at **2.0,** News. **2.30 to 3.0,** Interval. **3.0,** Programme for Children. **3.30,** Economic Notes and Time. **3.50,** Talk: On the Lower Rhine. **4.10,** English Reading. **4.30,** Brahms Concert: Kläre Hausen (Soprano), Toni Fassbender (Violin), Alfred Völker (Clarinet), and Dr. E. Rosenkaimer (Pianoforte); Sonata in G, Op. 78, for Violin and Pianoforte; Songs: (a) Von ewiger Liebe, (b) Mädchenlied, (c) Vergebliches Ständchen, (d) Meine Liebe ist grün, (e) Der Schmied; Clarinet Sonata in F Minor. **5.45,** Discussion on Employees' Insurance. **6.20,** Talk: Work of German Women in Upper Silesia. **6.45,** Weather, Time, Economic Notes, and Sports Results. **7.0,** Transmission for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** News. **8.5,** Humour in the Ranks—Musical and Literary Programme. **10.15,** News and Sports Notes. **10.45,** Serenade, conducted by Wolf. **12 Midnight,** Serenade on Gramophone Records. **1.0 a.m. (Sunday),** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc s, 389.6 metres; 120 kW.; and **Dresden, 941 kc s, 319 metres.—1.15 p.m.,** Johann Strauss Concert on Gramophone Records, followed by Exchange Quotations. **2.0,** Wireless Notes. **2.30,** Programme for Children. **3.15,** Review of Periodicals. **3.45,** Economic Notes. **4.0,** Talk on Music. **4.30,** Concert from **Berlin (Witzleben). 6.0,** Talk: Whereabouts in Germany is the best German Spoken? **6.20,** A Modern Dictionary. **6.30,** Talk on David Livingstone for the Sixtieth Anniversary of his Death. **7.0,** Transmission for all German Stations, relayed from **Berlin (Konigs Wusterhausen). 8.0,** Topical Talk. **8.15,** Variety Programme, relayed from the Municipal Theatre, Erfurt; The Erfurt Municipal Orchestra and Male Voice Choral Society and Soloists. **10.15** (in the interval), News Bulletin. **11.30,** Meeting of the Saxon Branch of Young Hitlerites at Planen. Part I.—Reports by Adolf Frank and Dr. Hess Vogel. Part II.—Items by a Verse-speaking Choir. Address of Welcome by Baldur von Schirach. Address by Adolf Hitler. Choral Epilogue.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc s, 574.7 metres; 7 kW.—**5.30 p.m.,** Quintet Concert. **6.30,** English Lesson. **7.0,** Talk for Workers. **7.30,** Talk on Philosophy. **8.0,** Opera, relayed from Zagreb. **10.0,** Time and News. **10.15,** Dance Music on Gramophone Records. **11.0** (approx.), Close Down.

LWOW

788 kc/s, 381 metres; 16 kW.—**6.20 p.m.,** Topical Talk. **6.25,** "The Festival of the Forest." **6.55,** Popular Music on Gramophone Records. **7.10,** Miscellaneous Items. **7.30 to 12 Midnight,** See **Warsaw.**

MADRID

ARANJUEZ (EAQ), 9,860 kc s, 30.43 metres; 20 kW.—Programme for Listeners in the Canary Islands, Guinea and America. **7.0 p.m.,** Concert of Popular Music and Spanish Music. **8.15,** Talk. **8.30,** Light Music. **9.0, to 11.30,** Interval. **11.30,** See **Madrid (Union Radio). 1.0 a.m.,** (approx.) Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Topical Review, Medical Talk, and Request Gramophone Records. **9.15,** News Bulletin. **9.30 to 10.0,** Interval. **10.0,** English Lesson by the Lingnaphone Method. **10.30,** Chimes and Time Signal. **10.45** (approx.), Faust—Opera (Gounod)—Concert Version, on Gramophone Records. **12.45 a.m. (Sunday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

263.8 metres; 11 kW.—**6.0 p.m.,** Reading of Modern French Lyrics. **6.15,** See **Prague. 6.25,** Illustrated Talk on Music. **7.0,** See **Prague. 8.0,** Variety Programme: The Mysterious Visit—Comedy (Konstantin); Songs and Instrumental Solos. **10.0,** See **Prague. 10.15,** See **Bratislava. 11.30** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**8.0 p.m.,** Talk in German: The Doctrines of Marx and Lenin. **9.0,** Programme in French: May the 1st—Radio Play. **9.55,** Time Signal. **10.5,** Programme in Spanish: May the 1st—Radio Play.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc s, 533 metres; 60 kW. Relayed by **Ausburg** and **Kaiserslautern, 536 kc/s, 560 metres** and **Nürnberg, 1,256 kc/s, 239 metres.—3.25 p.m.** (from **Nürnberg**), Talk: The Franconian Peasant in the Good Old Days. **3.45,** Weather and Agricultural Notes. **4.0,** Labour Market Report. **4.10,** Song and Pianoforte Recital: Partita in C Minor for Pianoforte (Bach); Three Songs for Soprano: (a) Die Liebe hat gelogen (Schubert), (b) Frühlingsglaube (Schubert), (c) Morgenwind (Cornelius); Variations in F Minor for Pianoforte (Hadyn); Four Songs for Contralto (Brahms): (a) An eine Aelosharfe, (b) An die Nachtigall, (c) Alte Liebe, (d) Sapphische Ode. **4.48** Talk: German Football Championships of the Past Thirty Years. **5.0,** Orchestral Concert, conducted by Erich Kloss. Overture, Hans Heiling (Marschner); Intermezzo and Caprice (Brahms); Selection from A Masked Ball (Verdi); Waltz, Wiener Blut (Joh. Strauss); Potpourri, Tonwellen (Manfred); Intermezzo, Evening Bells (Delly); Hungarian Shepherds' Dance (Gungl); Gallop, Ulanenattacke (Böhm). **6.15,** Talk: Excursions in the Bavarian Forests. **6.45,** Wireless Hints. **7.0,** Programme for all German Stations, relayed from **Berlin (Königs Wusterhausen). 8.0,** Variety Programme. The Station Orchestra and Choir, a Double String Quartet and Soloists. Part I. A Gay Melody of Spring Songs, Reading and Yodels; Part II. The May-Tree—Four Readings; Part III, Finale. **10.20,** Time, Weather, News and Sports Notes. **10.45,** Serenade. **12 Midnight** (approx.) Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 816 kc/s, 365.8 metres; Hamar, 536 kc/s, 522 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres. —5.15 p.m.,** Programme for Children. **6.15,** Hardanger Fiddle and Song Recital of Norwegian Music. **7.0,** Announcements and Weather. **7.15,** Talk on Economics. **7.30,** Talk on Tuberculosis. **8.0,** Time Signal. **8.1,** Concert by the Station Orchestra, conducted by Hugo Kramm. Soloist: Hans Brodahl (Baritone). **9.40,** Weather and News. **10.0,** Topical Talk. **10.15,** Concert by the Halvorsen Trio and M. Arsenjev (Balalaika). **11.0,** Popular Music on Gramophone Records. **12 Midnight** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc s, 542 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Notes, Tourist Report, Agricultural Notes and Giornale Radio. **8.20,** Sports Notes. **8.25,** Popular Music on Gramophone Records. In an interval at **8.30,** Time and Announcements. **8.45,** Frasquita—Operetta (Lehár). In the intervals, Book Review and Announcements. After the Operetta, News.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**6.45 p.m.,** Pianoforte Recital of Music by Chopin, Chabrier, and Ravel, with Commentary. **7.0,** Le Journal Parlé. **8.20,** Weather Report. **8.30,** Les Caprices de Marianne—Comedy in Two Acts (de Musset), followed by Invita-

APRIL 29th **SATURDAY** *continued*

tion to the Waltz—Play in One Act (Dumas Père), with Music by Weber. 10.0, Programme in Honour of the Author Saint-Georges de Bouhélier relayed from Sorbonne. 11.15 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—6.45 p.m., Journal Parlé. 7.0, Gramophone Concert of Popular Music. 7.20, Songs by Max Régnier. 8.0, Talk: The Event of the Week. 8.5, Theatre Notes. 8.15, Interval. 8.30, Concert by the Accord Parfait Vocal Quartet: Easter Songs: (a) La conversion de Marie-Magdeleine, (b) Réveillé, (c) Guignolot de Saint-Lagot; Spring Songs: (a) Ce moys de May, (b) La Violette; Seventeenth and Eighteenth Century Airs: (a) Dans notre village, (b) Au clair de lune, (c) Ah! le bel Oiseau, Maman! (d) Ronde provençale, (e) Colinette, (f) Bonjour mon Ami Vincent. 9.0, Interval. 9.10, Dance Music by the Sonora Band, conducted by F. Hoffmann. 11.0, News. 11.5, Dance Music on Gramophone Records. 12 **Midnight** (approx.), Close Down.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Light Music on Gramophone Records. 8.0, Press Review and Weather. 12 **Noon,** Concert of Pastorales by the Radio Paris Orchestra: Dance on a Rustic Theme (Raynal); Nuages (Georges); Ma chaumière abandonnée (Ackermans); On the Lagoon (Battle); Farandole from L'Arlésienne (Bizet); Par les Prés fleuris (Berger); Melancolia campestre (Bozetto); On the Lake (Brady); Calm of Evening (Brun); Selection from Messidor (Bruneau); La cloche (Brusselmans); Sous bois (Erlanger); Un Bruit de Rames (Fevrier); The Song of the Bees (Filipucci); Les Bergers d'Arcadie (Flament); Le coq de notre vieux clocher (Fourdrain); Pastorale (Franck); Danse des Faucheurs (Doret); Chanson du blé qui leve (Doret); Villanelle (Ganne). In the interval at 1.0 p.m., Exchange, News, and Weather, and at 1.30, Exchange. 2.0, Exchange. 3.0, Programme for Children. 3.45, Market Prices. 6.10, Agricultural Talk. 6.30, Concert of Light Music by the Station Orchestra. 7.0 (in an interval), Talk: Discoveries of the Great Navigators. 7.45, Review of the Latin Press. 8.0, Un Mariage à Pontarmy-Dames—Play (Max Eddy and Alex Madis). 8.30, News, Weather, and Sports Notes. 8.40, Review by Jean Rieux. 8.45, Songs of the Swiss Regiments in the French Service—Choral and Soloist Concert. 9.15 (in an interval), Press Review and News. 10.0, Report on the Gingerbread Fair.

PITTSBURGH

WESTINGHOUSE ELECTRIC, KDKA, 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK on 48.86 metres and 25.27 metres.—10.0 p.m.,** Dance Masters, from **New York.** 10.30, Concert Favourites, from **New York.** 11.0, The United States Government in Pittsburgh—Safety Measures for Water Navigation by H. Layfield, from **New York.** 11.15, Hotel Sherman Orchestra, from **New York.** 11.30, Behind the Law—Tales of the Pennsylvania State Police. 11.45, Little Orphan Annie, from **New York.** 12 **Midnight,** Hotel Lexington Orchestra, from **New York.** 12.15 **a.m. (Sunday),** Time Signal. 12.16, Weather Report. 12.17, Teaberry Sport Review. 12.22, Press News Reeler. 12.29, Temperature Report. 12.30, A Recreo by Bill and Alex of the Downtown Y.M.C.A. 12.45, Jack Pettis and his Orchestra. 12.59, Time Signal. 1.0, Homey and Old-fashioned Quartet. 1.15, Adventures of Aunt Lulu—KDKA Players. 1.30, Atkinson String Ensemble. 1.45 **to** 4.30, **New York** Relay. 1.45, Townsend Murder Mystery. 2.0, American Taxpayers' League. 2.15, The Boston Symphony Orchestra. 4.0, Gilbert and Sullivan Gems. 4.30, Jack Pettis and his Orchestra. 4.59, Time Signal. 5.0, Time Signal. 5.1, Teaberry Sport Review. 5.11, Temperature Report. 5.12, Weather Report. 5.13, KDKA Artist Bulletin. 5.15, Press Last Minute News Flashes. 5.20, Around the World Broadcast.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—4.0 **p.m.,** Opening of the Umalecka Beseda Art Exhibition, relayed from the Municipal Picture Gallery. Addresses and Music. 4.45, Variety Music on Gramophone Records. 5.0, Talk on X-Rays. 5.10, Talk: Electric Installations. 5.20, Czech Lesson for Germans and German Lesson for Czechs. 5.50, Popular Music on Gramophone Records. 6.5, Agricultural Report. 6.15, Talk for Workers: News from Russia. 6.25, News in German. 6.30, German Transmission: Poetry Readings. 7.0, Chimes. 7.1, News Bulletin. 7.10, Talk: Back to Nature. 7.25, See **Brno.** 8.0, See **Moravská-Ostrava.** In the interval at 9.0, Time Signal. 10.0, Time Signal. 10.1, News Bulletin. 10.15, See **Bratislava.** 11.30 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.: **LAUSANNE 442 kc/s, 680 metres;** and **GENEVA, 395 kc/s, 760 metres.—6.0 to 8.50,** Programme from **Geneva.** 6.0, Talk. 6.30, Review of New Books. 7.0, Weather and News. 7.30, Talk on the Cinema. 8.0, Russian Melodies by the Orlova Choir and Mme. Tatiana (Songs). 8.25, Theatre Review. 8.50, Concert by the Radio-Suisse Romande Orchestra. Soloist: Mme. Novicova (Songs). 10.0, News and Weather. 10.10 (from **Geneva**), Dance Music by the Broadcasting Serenaders. 11.30 (approx.), Close Down.

RJUKAN. See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.—1.0 to 2.15 p.m.,** Orchestral Concert. 4.30, Programme for Children. 4.45, Report of the Royal Geographical Society and Giornale Radio. 5.5, Exchange and Announcements. 5.15, Reading. 5.30, Organ Recital by Franco Michele Napolitano, from the Reale Conservatorio San Pietro a Maiella. 7.0 **(Naples),** Shipping and Sports Notes. 7.10, Atmospheric Signals. 7.20, Giornale Radio and Agricultural Notes. 8.0, Time, Announcements and Gramophone Records of Light Music. 8.15, Song Recital by Vera Natta Poggioli (Soprano) and Maria Meloni (Mezzo-Soprano). 8.30, Sports Notes and Tourist Report. 8.45, The Drum Major's Daughter—Operetta in Three Acts (Offenbach). In the intervals: Review of Books, Reading: A Spring Morning in Malta, and News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** and by **W2XAD** See Short-Wave List.—**1.0 a.m. (Sunday),** Hotel Park Central Orchestra, from **New York.** 1.15, Municipal Series. 1.30, Lady Fingers (Pianists). 1.45 **to** 4.0, **New York** Relay. 1.45, The World To-day by James G. McDonald. 2.0, Echoes of the Palisades. 2.30, The Economic World To-day. 3.0, The Blue Danube. 3.30, Neighbours. 4.0, Musical Programme from **New York,** followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **BASLE, 1,229 kc/s, 244.1 metres,** and **BERNE, 1,220 kc/s, 245.9 metres. 12.28 p.m.,** Time Signal from Neuchâtel Observatory. 12.30, Weather and News. 12.40 (from **Berne**), Variety Programme on Gramophone Records. 1.35, Weather and Exchange. 1.45 **to** 7.0, Programme from **Basle.** 1.45, Talk on Wireless. 2.0, Review of Books. 2.30, Folk Songs on Gramophone Records. 3.0, Medical Talk. 3.30, Talk on Chess. 4.0, Accordion Concert. 5.0, Relay from the Swiss Music Festival in Rheinfelden. 6.30, Talk: How to become a Saleswoman. 7.0 (from **Zürich**), Chimes from the Zürich Churches, followed by Time, Weather and Market Prices. 7.15 (from **Berne**), Report on the Third Swiss Radio Comrades Day from the Frohburg in Olten. 7.45 (from **Zürich**), Talk on the following Transmission. 8.0 (from **Zürich**), Orpheus—Opera (Gluck), relayed from the Municipal Theatre Special Performance on the occasion of the Centenary of Zürich University. In an interval at 9.15 (from **Zürich**), Weather and News. 10.10 (approx.) (from **Zürich**), Dance Music on Gramophone Records.

SOTTENS. See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres** and **Sundsvall, 554 kc/s, 542 metres.—4.0 p.m.,** Orchestral Concert. Soloist: Margit Otto Wennerstrand (Songs). Overture, The Cunning Peasant (Dvorak). Songs: (a) Ave Maria (Schubert), (b) Ich liebe dich (Beethoven), (c) Jahrlang möcht ich so dich halten (Sjögren), (d) Heindliche Aufforderung (R. Strauss). Kornmodsglansen Lange-Müller); Waltz, Siesta (Waldteufel); Tango, Nostalgia (Malvezzi); Selection from Der Teufelsreiter (Kalman). 5.5 (from **Göteborg**), Programme for Children. 5.30 Popular Music on Gramophone Records. 6.30, (from **Ostersund**), Variety Programme. 7.15, Weather and News. 7.30, Talk, relayed from **Uppsala, 662 kc/s, 453.2 metres. 8.0,** Concert of Old Dance Music. 9.45, Weather and News. 10.0, Modern Dance Music from the Ritz Restaurant. 12 **Midnight** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Classical Music on Gramophone Records. **12.45 p.m.,** News. 1.0, Time and Exchange. 1.5, The Damnation of Faust — Opera (Berlioz), on Gramophone Records. 3.0 **to** 3.45, Interval. 3.45, Talk in French on Franz Liszt. 4.0, Orchestral Concert, conducted by Maurice de Villers; Soloists: M. Grégoire (Violin and 'Cello) and M. Faniard (Songs). Part I.—Russian Music: A Night on the Bare Mountain (Mussorgsky); First Caucasian Suite (Ippolitov-Ivanov); Fantasia on Russian Themes, for Violin and Orchestra (Rimsky-Korsakov); Italian Caprice (Tchaikovsky). Part II.—Italian Music: Sonata for 'Cello and Orchestra (Boccherini); Songs: (a) Caro mio ben (Giordani), (b) Aria from The Puritans (Bellini), (c) Siciliana (Pergolesi); Dance of the Hours from La Gioconda (Ponchielli); Italian Melodies; Overture, The Italian Girl in Algiers (Rossini). 6.0, Legal Talk in German. 6.15, French Lesson. 6.30, Song and Pianoforte Recital by Mme. Lorenz and Mlle. Metz. Part I.—Old Music: Pianoforte Solos: (a) Le coucou (Daquin), (b) Two Minuets (Rameau); Songs: (a) Rondeau, (b) Air de Vénus (Lully); Pianoforte Solo: Musettes (Couperin); Bergerette (Weckerlin); Song, Les Trompeurs (Dauvergne); Song, Gavotte from Hippolyte et Aricie (Rameau); Pianoforte Solos (Rameau): (a) Rigaudon, (b) Musette, (c) Tambourin. Part II.—Modern Music: Pianoforte Solo: Ronde française (Ropartz); Chanson pour la nuit durable (de Sévérac); Lamento (Dupare); Song, Deuxième Odelette (Ropartz). 7.15, Talk on Agriculture. 7.30, Time and News. 7.45, Selection from Topaze (Pagnol), on Gramophone Records. 8.15, Press Review in German and Lottery Results. 8.30, Orchestral Concert of Alsatian Music, conducted by Maurice de Villers; Soloist: Mme. Guth-Quénel (Soprano). In an interval at 9.30 (approx.), Press Review in French. 10.30, Dance Music, relayed from the Savoy. 12 **Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW., and **FREIBURG, 527 kc/s, 570 metres. —12.20 p.m.,** Richard Schiffner Song Recital by Erika Weber. 12.40, Der alte Fritz—Gramophone Concert. 1.30 (from **Karlsruhe**), Concert by the Karlsruhe Philharmonic Orchestra, conducted by Willi Grabert. 2.30, Time, News, Weather and Programme Announcements. 2.45, Song Recital by Eberhard Schrempf (Baritone): Frühlingsfahrt (Schumann); Morgenständchen (Dettinger); Tod und Liebe (Zeller); Die drei Becher (Dettinger); Der Sieger (Kaun); Die drei Wanderer (Hans Hermann). 3.15, Swabian Anecdotes. 3.30, Ritter und Bauer—Historical Play for Young People. 4.30, Accordion Duets by Erika Collmer and Max Kettnaker; March, Schweizer Grenzwacht (Friedemann); Altniederländisches Dankgebet (Kremser); Cinderella's Bridal Procession (Dieker); Waltz, Wiener Madeln (Ziehrer); Ländlermelodien (Schittenhelm); March, Wiener Bamur (Hornischer). 5.0, Concert from **Munich.** 6.0, Talk: The Protection of the Civil Populace from Aerial Attack. 6.25 (from **Freiburg**), Talk: Swindlers. 6.50, Time and News. 7.0, Transmission for all German Stations, relayed from **Berlin (Konigs Wusterhausen).** 8.0, Bavarian Variety Programme with Wiess Ferdl, relayed from the Festhalle, Karlsruhe. 10.0, Time, News, Weather and Programme Announcements. 11.0, Late Cabaret, relayed from the Universum Cinema. 1.0 **a.m.** (Sunday), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—6.0, News. 6.15, Instrumental Solos. 6.30, Leonora Overture (Beethoven), by a Symphony Orchestra. 6.45, Accordion Music. 7.0, Chansonnettes. 7.15, Racing Results and News. 7.25, Local News Bulletin. 7.30, Opera Music: Airs from Carmen (Bizet), (b) Mignon (Thomas), (c) Lakmé (Delibez). 7.45, Hawaiian Guitar Solos. 8.15, Popular Melodies. 8.30, Military Music. 8.45, Variety Music. 9.0, Extracts from Le Petit Duc Operetta (Lecocq), followed by Popular Concert. 10.0, Dance Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco: Selection from Madame Butterfly (Puccini); Melodies (Curtis); Rheinfrenden (Strasser); Airs from Rigoletto (Verdi); Czardas. 11, Popular Concert. 11.30 **to** 12 **midnight,** Programme in English, by the I.B.C. W. Brown-Constable announcing. 11.3 Variety Music: There's something about a Soldier; Shout for Happiness; My Love When you've got the Pip; The Wise Owl said "Hoo"; The Barmaid's Son; Mein liebe Jacob; Happy Time. 11.5 I.B.C. Good-night Melody. 12 **midnight,** News, Weather and Announcements. 12 **a.m.** (Sunday). Balalaika Music and Russia Songs. 12.15, Music by a Symphon Orchestra; Selection from The Bird Fa ciet (Zeller); Selection from The Fair Sorochinsk (Mussorgsky). 12.30 (approx. Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW. 5.10 p.m. till Close Down. See **Turin.**

TRONDHEIM. See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500. metres.—5.10 to 6.0 p.m.,** Gramophone Records of Popular Music. 6.35, Giornale Radio and Agricultural and Exchange Notes. 7.0, Time, Tourist Report, and Gramophone Records of Light Music. In the interval from 7.20 to 7.45, Giornale Radio. 8.0 Announcements, Giornale Radio and Weather, followed by Gramophone Records (contd.). 8.30, Talk: Events and Problems and Gramophone Records of Light Music. 9.0, Instrumental Concert, conducted by Ugo Tansini. 10.0, Variety Programme. 11.0 Giornale Radio. 11.5 to 11.30 (**Florence**) Dance Music Relay.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and 5,960 kc/s, 50.26 metres (Evening); 10 kW.—**11.0 to 11.15 a.m.,** Religious Announcements in Various Languages. 8.0 to 8.15 p.m., Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,05 kc/s, 283 metres; Klagenturt, 662 kc/s, 453. metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.—5.40 p.m.,** Choral Concert. 5.15, Talk with Gramophone Records: A Wedding in Serbia. 5.45, Orchestral Concert. 6.45, Topical Talk. 7.10 Time, Weather, Sports Notes, and Programme Announcements. 7.20, Pianoforte Recital by Dr. Paul Weingarten: Chaconne (Handel); Sonata in D Minor, Op. M. No. (Beethoven); Impromptu, Op. 142 No. (Schubert) Mazurka in C Sharp Minor (Chopin); Waltz in A Flat (Chopin). 8.0 Bunter Abend (Variety Programme). 10.0 News Bulletin. 10.15, Concert relayed from the Hotel Krantz-Ambassador.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**1.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. 12.5 **p.m.,** Programme Announcements. 12.10, Light Music on Gramophone Records. 1.10, Weather Forecast. 1.15 Educational Programme, relayed from **Lwow 788 kc/s, 381 metres.** 2.0, Programme for Soldiers. 2.40 **to** 3.10, Interval. 3.10, Announcements. 3.15, Economic Notes. 3.25 Answers to Military Correspondence. 3.35 Programme for Children. 4.0, Light Music on Gramophone Records. 4.20, Educational Talk. 4.40, Talk on Slovak Literature, relayed from **Cracow, 959 kc/s, 312.8 metres.** 5.0, Popular Music on Gramophone Records. 5.40, Topical Talk. 5.55, Programme Announcements. 6.0, Educational Talk. 6.20 News. 6.25, Light Music, relayed from the Café Ziemianska. 7.0, Miscellaneous Items. 7.20, Agricultural Report. 7.30, Topical Talk. 7.45, Radio Journal. 8.0, Concert by the Station Orchestra, conducted by S. Nawrot. Soloists: J. Brochwicz (Soprano) and L. Sempolinsky (Humorous Songs); Overture, Queen for a Day (Adam); Pièce, Penatti-Melvezzi); Soprano Solos; Selection from Paganini (Lehar); Humorous Songs; Sevillana and Tango (Leoncavallo); Soprano Solos; Waltz, Golden Rain (Waldteufel); Serenade, The Blue Pavilion (Arnaudola); Spanish Overture (Keler Bela); Humorous Songs; Suite from The Bartered Bride (Smetana); Oberkis (Namyslowsky); Mazurka (Wronsky Straszynsky). In the Interval, Sports Notes and Radio Journal. 10.5, Chopin Pianoforte Recital by Mme. Rabcewicz. 10.40, Reading. 10.55, Aviation Weather Report and Police Notes. 11.0, Dance Music, relayed from the Bodega Dance Hall. In the interval, News for Members of the Polish Polar Expedition.

ZURICH.—See **Schweizerischer Landessender.**

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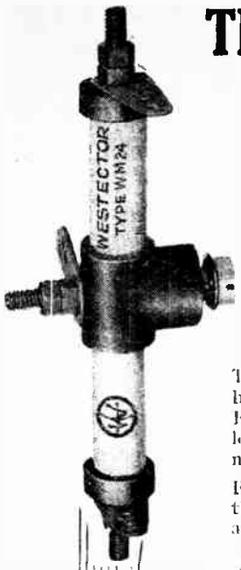

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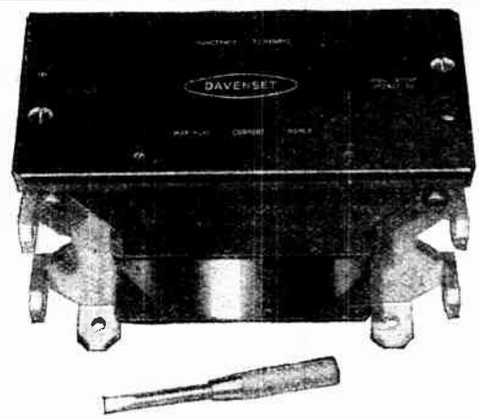

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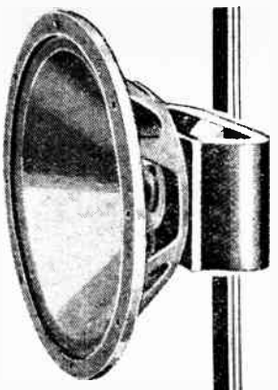

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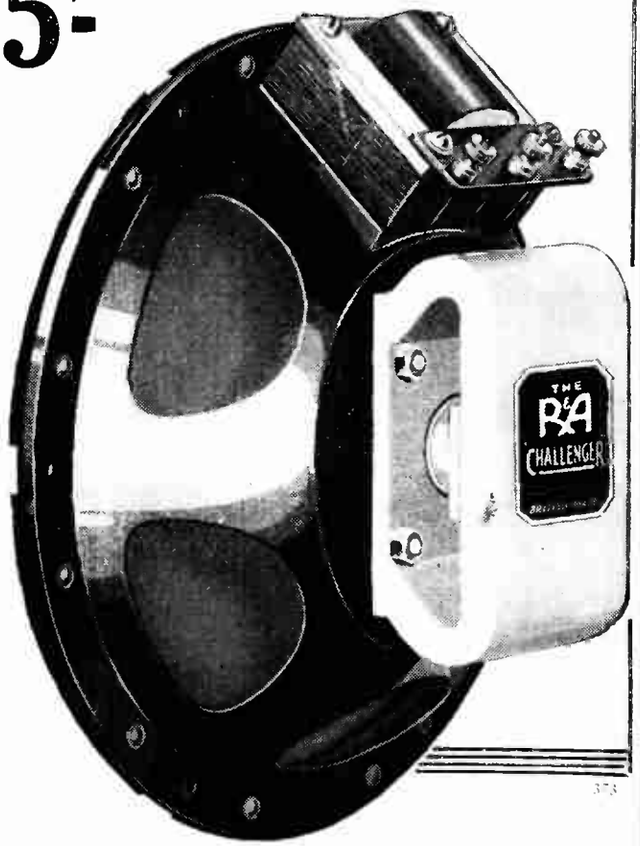

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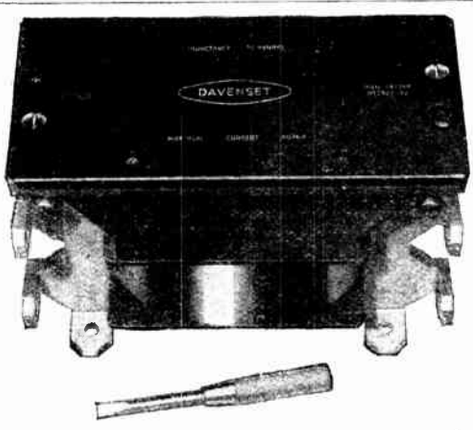

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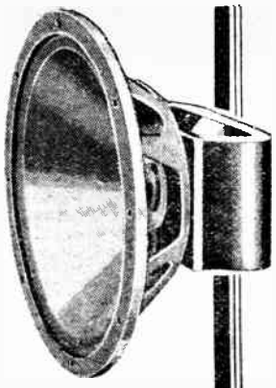

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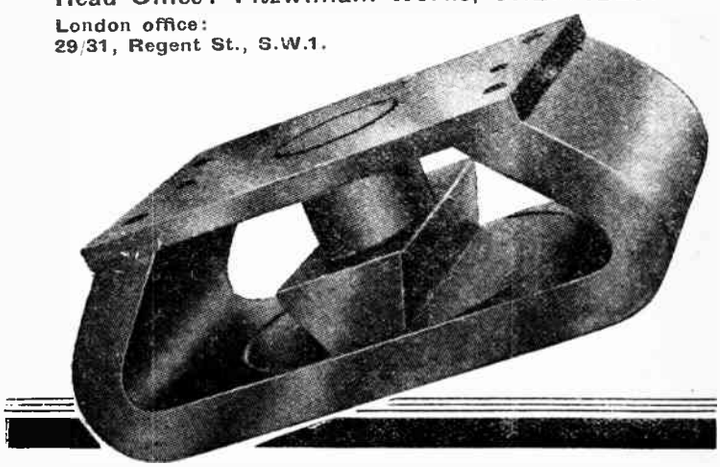

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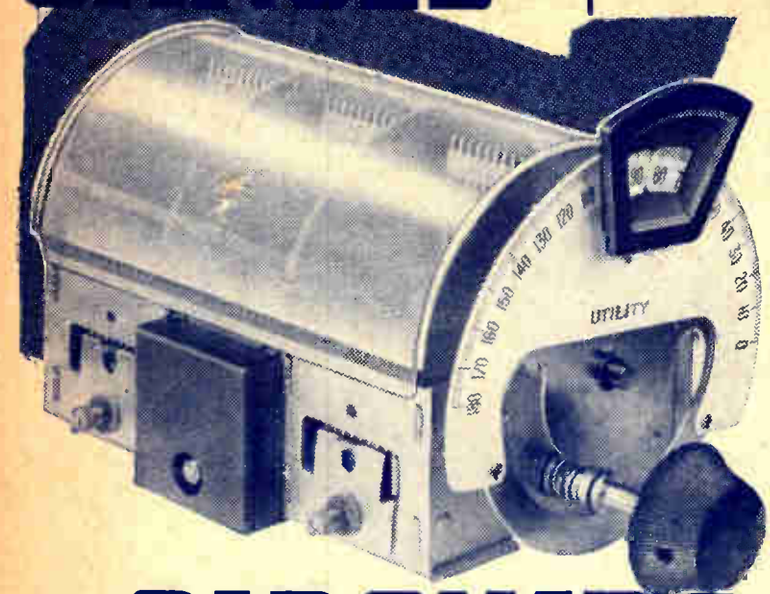

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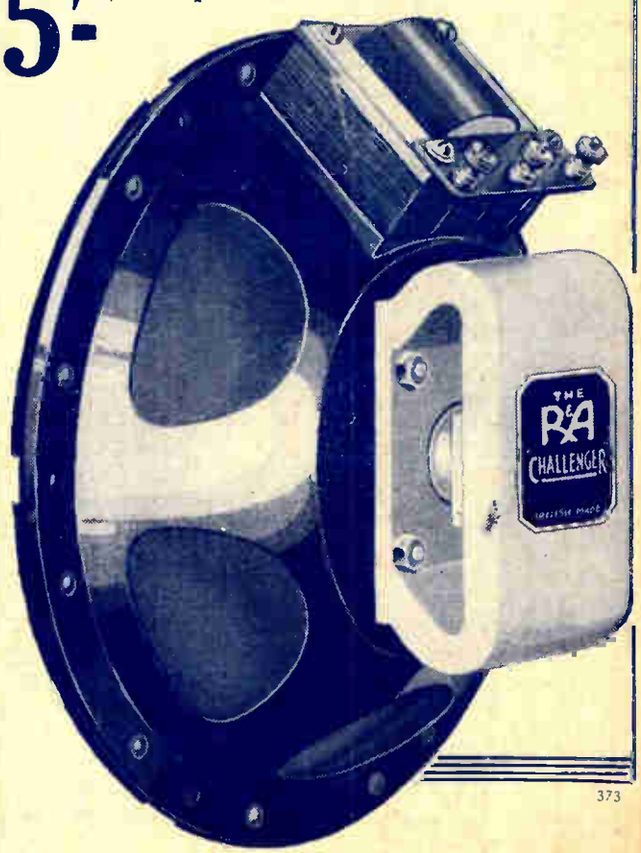

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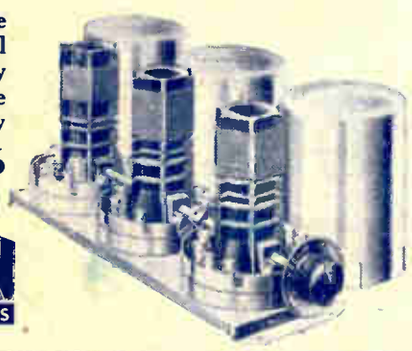

TELSEN RADIO COMPONENTS

Announcement of the TELSEN ELECTRIC CO., LTD., ASTON, BIRMINGHAM

Write for the New SONOCHORDE

Broadsheet and Technical Folder

The Sonochorde Standard P.M. unit equipped with Class "B" transformer is ideal for use with the W.W. revolutionary Class "B" Ferrocart Receiver (see issue April 7th, 1933). The Sonochorde concentric disc suspension promotes added sensitivity and lends itself to heavy input loads without fear of distortion.

STANDARD CLASS "B" P.M. UNIT

37/6

Sonochorde Reproducers Ltd.
1, Willesden Lane, London, N.W.6.
'Phone: Maida Vale 6066 (5 lines).

Distributors in Belgium—Van der Becke and Marsily, 40, Rempart Kipdorp, Antwerp, Belgium, under the trade name SONOVOX.

When you see the name DUBILIER

on your resistances you know you have the world's finest!

Exclusively Adopted and Recommended by ★ McMICHAEL, EDDYSTONE, G.E.C., PETO-SCOTT and PHILIPS, etc.

M-L Anode Converters merely require connecting to a 6 or 12v. L.T. Battery to give smooth, constant H.T. and G.B. Current. Built to last, Models from £8.

Special Models for McMichael, G.E.C., Philips and Peto-Scott short-wave receivers £9.10.0. Eddystone Model £8.5.0.

GET H.T. CURRENT FROM L.T. BATTERY WITH

M-L ANODE CONVERTERS

Write for Full Details post free from Dept. I.
ROTAX LTD., WILLESDEN, LONDON, N.W.1

Models to suit all long- and short-wave receivers

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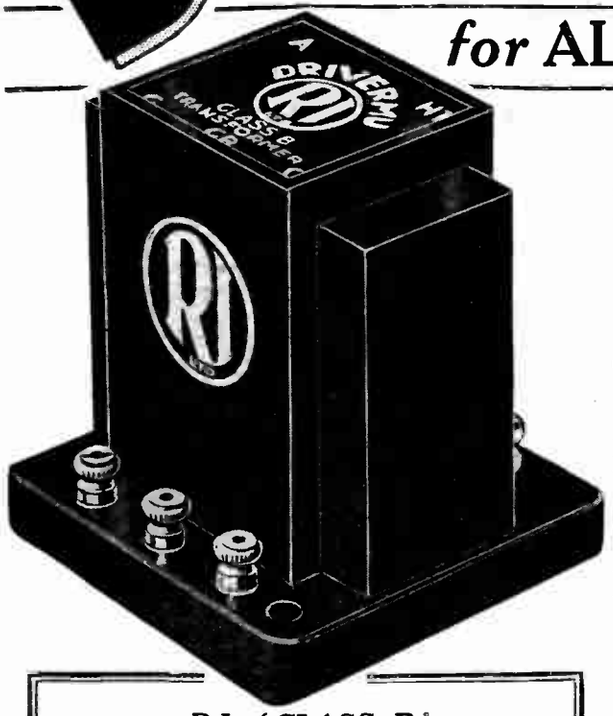
'DRIVERMU' CLASS 'B' TRANSFORMERS

for ALL "CLASS B" CIRCUITS



The still more power and still less H.T. consumption for battery set development has reached an extraordinarily high peak of efficiency with the advent of 'Class B' valves used with R.I. 'Drivermu' Transformers and D.Y. 40 Output Chokes.

THE R.I. WAY TO GREATEST AUDIO POWER & H.T. ECONOMY

In 'Class B' amplification, the 'Class B' valve must be correctly matched with the particular type of preceding valve which is employed as a driver. The success of the system depends upon this matching of the valves, and the 'Drivermu' Transformer is the most efficient method of coupling available. 'Drivermu' Transformers have been designed in conjunction with the principal valve manufacturers, and are guaranteed to give maximum power, m nimum H.T. current consumption, and complete freedom from distortion, which are the principal claims made for the system.

'DRIVERMU' COVERS ALL COMBINATIONS OF 'CLASS B' & DRIVER VALVES

No matter which 'Class B' valve and driver valve is chosen for the particular output required, there is a 'Drivermu' of correct ratio to match them most perfectly.

HOW TO SELECT THE VALVES AND CORRECT COMPONENTS FOR 'CLASS B' SET CONSTRUCTION OR CONVERSION

The R.I. Brochure explains 'Class B' and contains tables for easy selection of right valves and components, also diagrams for application of 'Class B' to new receivers or existing models.

R.I. 'CLASS B' 'DRIVERMU' TRANSFORMER

The illustration shews models DY39, DY41 and DY42. Models DY37 and DY38 are not in bakelite case.

Carefully designed for push pull input into any 'Class B' type output valve and for use following any type of driver valve. **The efficiency is of the order of over 80%**, and the primary inductances are very high when carrying maximum driver anode current.

R.I. 'DRIVERMU' TRANSFORMERS

List No.	RATIOS. Total :	Per Secondary :	PRICE Royalty 1/6 extra
DY37	1 : 1 and 1·5 : 1	2 : 1 and 3 : 1	15/-
DY38	2 : 1 and 2·5 : 1	4 : 1 and 5 : 1	15/-
DY39	1 : 1	2 : 1	11/-
DY41	2 : 1	4 : 1	11/-
DY42	1·5 : 1	3 : 1	11/-

R.I. 'CLASS B' OUTPUT CHOKE

Provides most satisfactory output coupling between every type of 'Class B' output valve and loudspeaker that is normally suitable for use with any type of triode or pentode valve in normal or push pull arrangement. **Over 90% efficiency.**

List No. D.Y.40. *Ratios* 1 : 1, 1.2 : 1, 1.5 : 1, *and* 1.8 : 1 - - - - *Price each* **12/6**

'CLASS B' BROCHURE—FREE

Post in ½d. stamped, unsealed envelope to Radio Instruments Ltd., Purley Way, Croydon, Surrey.

Name .....

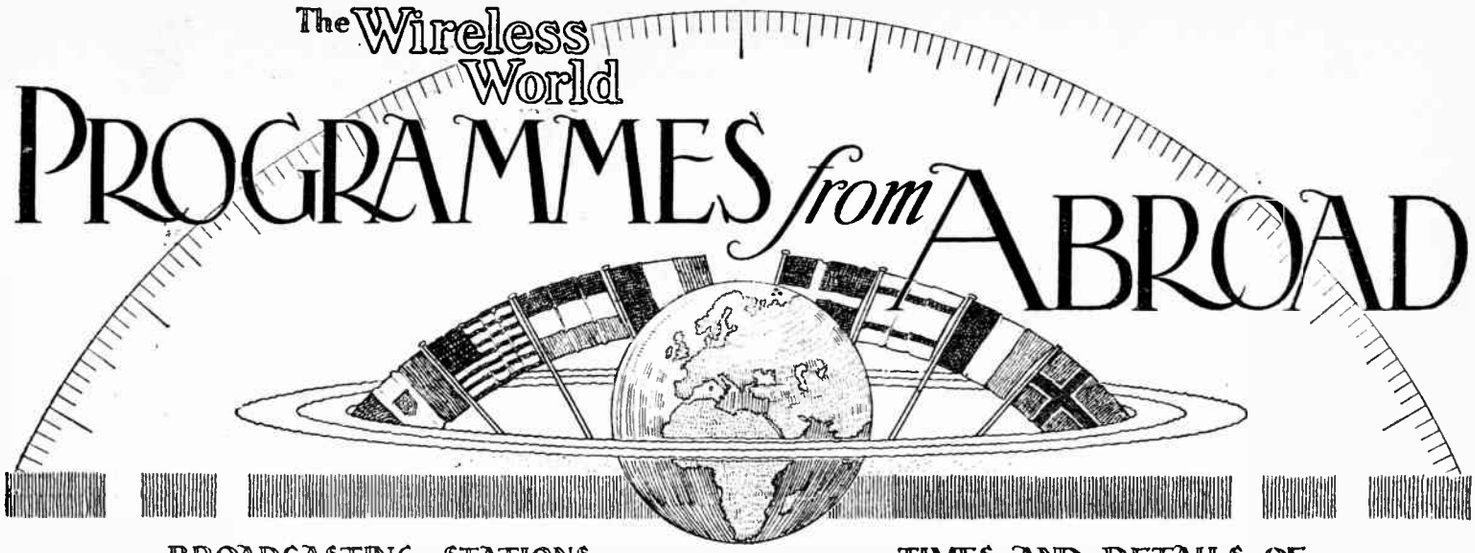
Address .....

..... W.W.

The Advertisement of Radio Instruments Ltd., Croydon, Surrey. 'Phone : Thornton Heath 3211.

The Wireless World

PROGRAMMES *from* ABROAD



BROADCASTING STATIONS ARRANGED IN ORDER OF WAVELENGTH

TIMES AND DETAILS OF FULL WEEK'S FOREIGN TRANSMISSIONS

Metres.	Kc.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania)	
1875	160	8.5	Huizen (Holland)	
1796	167	40	Lahti (Finland)	
1725	174	75	Radio Paris, C.F.R.	
1635	183.5	60	Zeesen (Königswusterhausen) (Germany). (*S.-W. Stn. DJA on* 31.38 *m.*)	
1554.4	193	30	Daventry National	
1538	195	7	Ankara (Angora) (Turkey)	
1481	202.5	100	Moscow, RV1 (Old Komintern) (Russia)	
1446	207.5	13	Eiffel Tower, FL, Paris	
1412	212.5	120	Warsaw I (Poland)	
1380	217.5	100	Novosibirsk, RV6 (Russia)	
1354.4	221.5	30	Motala (Sweden). (*Relays Stockholm*)	
1304	230	100	Moscow, WZSPS (Trade Union) (Russia)	
1275	235	0.5	Tunis-Kasbah (Tunisia)	
1230	244	0.6	Boden (Sweden). (*Relays Stockholm*)	
1200	250	5	Stamboul (Turkey)	
1200	250	21	Reykjavik (Iceland)	
1190	252	200	Luxembourg (*Testing*)	
1170	256	25	Tashkent, RV11 (Russia)	
1154	260	7.5	Kalundborg (Denmark). (*Relays Copenhagen*)	
1117	268.5	40	Moscow, Popoff RV58 (Russia)	
1083	277	60	Oslo (Norway)	
1071	280	35	Tiflis, RV7 (Russia)	
1035	290	36	Kiev, RV9 (Russia)	
1000	300	100	Moscow (Russia) (*S.-W. Stn. on* 50 *m.*)	
938	320	20	Kharkov, RV4 (Russia)	
857	350	100	Leningrad (Russia)	
840	357	18.5	Budapest (Hungary)	
825	363.6	50	Sverdlovsk, RV5 (Russia)	
770	389	0.6	Ostersund (Sweden). (*Relays Stockholm*)	
760	395	1.3	Geneva (Switzerland). (*Relays Sottens*)	
720	416.6	20	Moscow, RV2 (Experimental) (Russia)	
690	434.6	1.5	Oulu (Uleaborg) (Finland)	
680	441.2	0.6	Lausanne (Switzerland). (*Relays Sottens*)	
574.7	522	0.7	Hamar (Norway). (*Relays Oslo*)	
574.7	522	7	Ljubljana (Yugoslavia)	
569	527	0.25	Freiburg-im-Breisgau (Germany). (*Relay Stn.*)	
568.1	528	2	Grenoble (France)	
566	530	0.25	Hanover (Germany). (*Relays Hamburg*)	
563	533	16	Wilno (Poland). (*Relay Station*)	
560	536	0.25	Augsburg (Germany). (*Relays Munich*)	
560	536	1.5	Kaiserslauten (Germany). (*Relays Munich*)	
558.6	537	1	Tampere (Finland). (*Relays Helsinki*)	
550	545	18.5	Budapest No. 1 Lakihegy (Hungary)	
542	554	10	Sundsvall (Sweden). (*Relays Stockholm*)	
537.6	558	3	Palermo (Italy)	
533	563	60	Munich (Germany)	
525	571	15	Riga (Latvia)	
517	580	15	Vienna (Rosenhügen) (Austria)	
509	589	15	Brussels No. 1, Velthem (Belgium). (*In French*)	
500.8	599	20	Florence, IFI (Italy). (*Relays Turin*)	
495.8	605	1.2	Trondheim (Norway)	
488.6	614	120	Prague, No. 1 (Czechoslovakia)	
480	625	50	North Regional (Manchester)	
472.4	635	60	Langenberg (Germany)	
465.8	644	1.5	Lyons la Doua, PTT (France)	
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland).	
453.2	662		San Sebastian, EAJ8 (0.6 kW.); Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (*relays Heilsberg*); Klagenfurt (0.5 kW.) (Austria) (*relays Vienna*); Porsgrund (0.7 kW.) (*relays Oslo*), Tromsö (0.1 kW.) Bodö (0.5 kW.) (Norway); Upsala (0.15 kW.) (Sweden) (*relays Stockholm*).	

Metres.	Kc.	kW.	Station.	Tuning Positions.
453.2	662	0.25	Agen (France)	
453.2	662	7	Milan (*Experimental Relays Rome*)	
450.3	666	20	Madona (Latvia)	
447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.); Rjukan (0.15 kW.), Notodden (0.08 kW.) (Norway) (*relays Oslo*).	
441.2	680	50	Rome, IRO. (*S.-W. Station*, 2 *RO on* 25.4 *m.*)	
435.4	689	55	Stockholm, SASA (Sweden)	
430.4	697	2.5	Belgrade (Yugoslavia)	
424.3	707	2	Madrid, EAJ7 (Union Radio). (*After* 7.0 *p.m.*)	
424.3	707	100	Moscow, Imini Stalina (Russia)	
419.5	715	1.5	Berlin, No. 1, Witzleben (Germany)	
416.4	720.5	5	Rabat (Morocco)	
413	725	60	Athlone (Irish Free State)	
408.7	734	16	Katowitz (Poland)	
403.8	743	25	Sottens (Radio Suisse Romande) (*Switzerland*)	
398.9	752	25	Midland Regional	
394.2	761	12	Bucharest (Roumania)	
389.6	770	120	Leipzig (Germany)	
385.1	779	8	Toulouse (Radiophonie du Midi) (France)	
385.1	779	10	Stalino, RV26 (Russia)	
381	788	16	Lwow (Lemburg) (Poland)	
376.4	797	50	Scottish Regional (Falkirk)	
372.2	806	1.5	Hamburg (Germany)	
370.1	810.5	0.8	Radio, LL, Paris	
368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (*relays Lahti*); Kharkov, RV20 (10 kW.) (Russia).	
365.8	821	0.7	Fredrikasstad (Norway). (*Relays Oslo*)	
364.1	824	1	Bergen (Norway)	
363.6	825	13	Algiers (Algeria)	
360.6	832	60	Mühlacker (Stuttgart) (Germany)	
355.9	843	50	London Regional (Brookmans Park)	
352.1	852	7	Graz (Austria). (*Relays Vienna*)	
348.8	860	7.6	Barcelona, EAJ1 (Spain)	
348.8	860	10	Leningrad, RV70 (Russia)	
345.2	869	11.5	Strasbourg, PTT (France)	
341.7	878	35	Brno (Brunn) (Czechoslovakia)	
338.2	887	15	Brussels II, Velthem (Belgium). (*In Flemish*)	
335	896	5	Cadiz (Spain)	
334.4	897	1.9	Poznan (Poland)	
331.5	905	50	Milan (Italy). (*Relays Turin*)	
328.2	914	60	Poste Parisien (France)	
325	923	60	Breslau (Germany)	
321.9	932	10	Göteborg (Sweden). (*Relays Stockholm*)	
318.8	941	0.25	Dresden (Germany). (*Relays Leipzig*)	
318.8	941	1.5	Naples, INA (Italy). (*Relays Rome*)	
315.8	950	1.6	Marseilles, PTT (France)	
312.8	959	1.7	Cracow (Poland)	
312.8	959	10	Genoa, IGE (Italy). (*Relays Turin*)	
309.9	968	1	Cardiff	
312.8	959	0.7	Radio Vitus (Paris). (*S.-W. Stn. on* 43.75 *m.*)	
307	977	0.75	Zagreb (Yugoslavia)	
304	986	13	Bordeaux Lafayette, PTT (France)	
301.5	995	50	North National (Manchester)	
298.8	1004	11	Tallinn (Esthonia)	
296.1	1013	20	Hilversum (Holland). (7 *kW. before* 4.40 *p.m.*) (*Exchanges wavelengths with Hilversum every three months.*)	
293.5	1022	0.7	Limoges, PTT (France)	
293.5	1022	2.6	Kosice (Czechoslovakia)	
291	1031	10	Viipuri (Viborg) (Finland). (*Relays Helsinki*)	
288.3	1040	50	Scottish National (Falkirk)	
288.3	1040	1	Bournemouth (*Relay Station*)	

BROADCASTING STATIONS ABROAD (In Order of Wavelength).

Metres.	Kc.	kW.	Station.	Tuning Positions.
287.3	1022	0.7	Lyons (Radio-Lyon) (France)	
283.6	1058	0.5	German Relays (Berlin, Magdeburg, Stettin)	
283.6	1058	0.5	Innsbruck (Austria). (*Relays Vienna*)	
282.2	1063	2	Lisbon CT 1AA (Portugal). (*Short-wave Station on* 31.25 *m.*)	
281.2	1067	0.75	Copenhagen (Denmark)	
278.8	1076	13.5	Bratislava (Czechoslovakia)	
276.5	1085	60	Heilsberg (Germany)	
273.7	1096	7	Turin (Italy)	
271.5	1105	1.3	Rennes, PTT (France)	
269.8	1112	20	Bari (Italy)	
269.8	1112	0.25	Bremen (Germany). (*Relays Hamburg*)	
267.6	1121	1.5	Valencia (Spain)	
265.8	1128.5	1.3	Lille, PTT (France)	
263.8	1137	11.2	Moravska Ostrava (Czechoslovakia)	
261.5	1147	50	London National (Brookmans Park)	
259.3	1157	17	Frankfurt-a.M. (Germany)	
259.3	1157	2.3	Trier (Germany). (*Relays Frankfurt*)	
257.1	1167	10	Hörby (Sweden). (*Relays Stockholm*)	
255.1	1176	0.7	Toulouse, PTT (France)	
253.1	1185	5	Gleiwitz (Germany). (*Relays Breslau*)	
252	1193	1	Barcelona, EAJ15 (Assoc. Nat.) (Spain)	
249.6	1202	0.8	Juan-les-Pins, Nice (France)	
247.7	1211	10	Trieste (Italy). (*Relays Turin*)	
245.9	1220	0.12	Swansea	
245.9	1220		Berne (0.5kW.) (Switzerland)(*relays Beromünster*); Eskilstuna (0.2 kW.), Säffle (0.4 kW.) (Sweden) (*relays Stockholm*); Cassel (0.25 kW.) (Germany) (*relays Frankfurt*); Linz (0.5 kW.) (Austria) (*relays Vienna*); Pietarsaari (0.5 kW.), Turku (Abo) (0.5 kW.) (Finland) (*relays Helsinki*); Schaerbeek (0.1 kW.) (Belgium).	
244.1	1229	0.5	Basle (Switzerland). (*Relays Beromünster*)	
242.3	1238	1	Belfast (N. Ireland)	
240.6	1247	0.5	Stavanger (Norway)	
238.9	1256	2	Nürnberg (Germany). (*Relays Munich*)	
238	1260	1	Nimes (France)	
237.2	1265	3	Bordeaux, Sud-Ouest (France)	
235.5	1274	0.5	Kristiansand (Norway)	
235	1283	1.65	Lodz (Poland). (*Relay Station*)	
232.2	1292	0.25	Kiel (Germany). (*Relays Hamburg*)	
230.6	1301	—	Swedish Relay Stations. (Malmö, Norrköping, Karlstad and Trollhätten).	
227.4	1319	0.5	Flensburg (Germany). (*Relays Hamburg*)	
225.9	1328	10	Fécamp, Radio-Normandie (France)	
224.4	1337	1	Cork (Irish Free State)	
222.9	1346	0.15	Hüdiksvall (Sweden)	
219.9	1365	1.5	Béziers (France)	
218.5	1373	0.2	Plymouth	
218.5	1373	0.5	Salzburg (Austria). (*Relays Vienna*)	
217	1382	0.5	Königsburg (East Prussia) (Germany)	
217	1382	0.25	Karlstad (Sweden)	
215.6	1391	0.1	Brussels, Radio-Chatelineau (Belgium)	
215.6	1391	0.2	Halmstad (Sweden)	
214.3	1400	1	Aberdeen	
211.3	1420	1	Newcastle	
209.8	1430	1.25	Magyarovar, Miskolcz and Pecs (Hungary)	
207	1450	0.15	Boras (Sweden)	
206	1460	0.2	Ornsköldsvik (Sweden)	
204.1	1470	0.2	Gävle (Sweden)	
202.7	1480	0.25	Kristineham (Sweden)	
201.3	1490	0.25	Hälsingborg (Sweden)	
195	1530	0.2	Karlskrona (Sweden)	

PRINCIPAL SHORT-WAVE STATIONS.

(N.B.—Times of Transmission, given in parentheses, are approximate only and represent B.S.T.)

Metres.	Kc.	Call Sign.	Station.	Tuning Positions.
80.0	3,750	2RO	Rome	
70.2	4,273	RW15	Khabarovsk (Russia). (*Daily* 10.00–13.00)	
63.0	4,760	CT3AR	Funchal (Madeira). (*Wed.* 21.30, *Sun.* 15.30)	
62.56	4,795	VE9BY	London, Ont. (Canada). (*Sun.* 07.00)	
62.5	4,800	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 01.00)	
58.3	5,146	PMY	Bandoeng (Java). (*Daily* 13.20 *and* 08.00)	
58.0	5,172	OK1MPT	Prague (Czechoslovakia). (*Tues. and Fri.* 20.30.)	
54.52	5,502	W2XBH	Brooklyn, N.Y. (U.S.A.). (*Relays WCGU*)	
52.7	5,690	FIU1	Tananarive, P.T.T. (Madagascar)	
52.5	5,714	HCJB	Quito (Ecuador). (*Daily* 13.30)	
51.22	5,857	XDA	Chapultepec (Mexico)	
50.6	5,930	HKO	Medellin (Colombia)	
50.26	5,970	HVJ	Vatican State, Rome. (*Daily* 20.00)	
50.0	6,000	ZL3ZC	Christchurch (New Zealand). (*Wed.* 04.00, *Sat.* 08.30.)	
50.0	6,000	—	Bucharest (Roumania)	
50.0	6,000	RW59	Moscow (*Relays Trades Union Stn.*)	
50.0	6,000	EAR25	Barcelona, Radio Club (Spain). (*Sat.* 21.00)	
49.96	6,005	HRB	Tegucigalpa (Honduras). (*Daily ex. Sun.* 01.00–06.00.)	
49.83	6,020	W9XF	Chicago, Ill. (U.S.A.). (*Relays WENR*)	
49.8	6,023	XEW	Mexico City (Mexico). (*Daily* 02.00)	
49.67	6,042	W2XAL	Coytesville, N.J. (U.S.A.). (*Relays WRNY.*)	
49.6	6,048	W3XAU	Philadelphia, Pa. (U.S.A.). (*Relays WCAU.*)	
49.59	6,050	VE9HX	Halifax (Nova Scotia). (*Relays CHNS*)	
49.58	6,050	GSA	Empire Broadcasting, Zones 4–5	
49.5	6,060	VQ7LO	Nairobi (Kenya Colony). (*Daily* 17.30)	
49.5	6,060	W8XAL	Mason, Ohio (U.S.A.). (*Relays WLW*)	
49.43	6,069	VE9CS	Vancouver, B.C. (Canada)	
49.4	6,072	OXY	Skamlebaek (Denmark). (*Relays Copenhagen.*)	
49.4	6,072	UOR2	Vienna. (*Tues.* 14.00, *Thurs.* 16.00, *Sat.* 21.00.)	
49.34	6,080	W2XCX	Kearny, N.J. (U.S.A.). (*Relays WOR*)	
49.34	6,080	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
49.22	6,095	VE9GW	Bowmanville, Ont. (Canada). (*Daily* 21.00)	
49.2	6,098	ZTJ	Johannesburg (S. Africa). (*Weekdays* 10.00, 15.00 [*Sat.* 15.30] *and* 18.00, *Sun.* 11.00 *and* 17.30.)	
49.18	6,100	W3XAL	Bound Brook, N.Y. (*Relays WJZ*)	
49.1	6,110	VUC	Calcutta, India. (*Daily* 14.00)	
49.02	6,120	W2XE	Long Island, N.Y. (U.S.A.). (*Relays WABC.*)	
48.86	6,140	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
48.8	6,147	VE9CL	Winnipeg (Canada). (*Daily ex. Sun.* 01.30)	
48.65	6,167	XUF	Mexico City (Mexico)	
48.35	6,205	HKC	Bogota (Colombia). (*Daily* 16.00)	
48.2	6,220	2RO	Rome (Italy)	
48.05	6,243	HKD	Barranquilla (Colombia). (*Weekdays* 24.15)	
48.0	6,250	CN8MC	Casablanca (Morocco). (*Relays Rabat*)	
47.0	6,382	HCIDR	Quito, Ecuador. (*Daily* 02.00)	
46.69	6,425	W3XL	Bound Brook, N.J. (U.S.A.). (*Relays WJZ irregular.*)	
46.67	6,426	VE9BY	London, Ont. (Canada). (*Sat.* 02.00 *Sun.* 03.00.)	
45.38	6,611	REN	Moscow (*Relays Trade Union Stn.*)	
45.0	6,667	FM8KR	Constantine (Algeria). (*Mon. and Fri.* 23.00.)	
45.0	6,667	TGW	Guatemala City (Central America). (*Daily* 04.00.)	
43.75	6,860	—	Radio Vitus, Paris. (*Daily* 20.30)	
43.0	6,970	EAR110	Madrid. (*Tues. and Sat.* 23.30)	
41.7	7,195	VS1AB	Singapore (Malay States). (*Sun. and Wed.* 16.30.)	
41.6	7,211	EAR58	Teneriffe (Radio Club) (Canary Islands)	
41.5	7,230	HB9D	Zurich (Radio Club) (Switzerland). (*1st and 3rd Sun.*)	
41.0	7,320	HSP2	Bangkok (Siam). (*Mon.* 15.00)	
40,3	7,443	HBQ	Radio Nations, Prangins (Switzerland). (*Sun.* 23.00–23.45).	
39.7	7,556	HKF	Bogota (Colombia). (*Westinghouse Labs.*)	
39.4	7,612	X26A	Nuevo Laredo (Mexico). (*Thurs.* 17.00)	
38.7	7,797	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 23.00–23.45.)	
36.92	8,125	PLW	Bandoeng (Java). (*Daily* 11.00–15.00)	
34.68	8,650	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 24.00)	
34.68	8,650	VE9BY	London, Ont. (Canada). (*Mon.* 22.00)	
33.50	8,928	TGX	Guatemala City (S. America)	
32.26	9,300	—	Rabat (Morocco). (*Sun.* 22.00)	
31.58	9,500	PRBA	Rio de Janeiro (Brazil). (*Daily* 22.30)	
31.55	9,510	VK3ME	Melbourne (Australia). (*Wed. and Sat.* 11.00.)	
31.54	9,510	GSB	Empire Broadcasting, Zones 2, 4, 5	
31.48	9,530	W2XAF	Schenectady, N.Y. (U.S.A.) (*Relays WGY*)	
31.38	9,560	DJA	Zeesen (Germany). (*Daily* 14.00)	
31.35	9,570	SRI	Posen (Poland). (*Tues. and Thurs.* 18.30)	
31.35	9,570	W1XAZ	East Springfield, Mass. (U.S.A.). (*Relays WBZ.*)	
31.3	9,582	W3XAU	Philadelphia, Pa. (U.S.A.). (*Daily ex. Thurs. and Fri.* 22.00.)	
31.3	9,580	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 23.00–23.45.)	
31.29	9,585	GSC	Empire Broadcasting, Zone 3	
31.28	9,590	VK2ME	Sydney (Australia). (*Sun.* 11.00)	
31.25	9,598	CT1AA	Lisbon (Portugal). (*Tues. and Fri.* 23.00–01.00.)	
31.10	9,640	HS2PJ	Bangkok (Siam). (*Mon.* 03.00–06.00)	
30.43	9,869	EAQ	Aranjuez (Spain). (*Daily* 00.30) *Sat.* 19.00)	
30.0	10,000	—	Belgrade (Yugoslavia). (*Mon.* 20.00)	
29.3	10,238	T14NRH	Heredia (Costa Rica). (*Daily* 23.00 *and* 03.00.)	
28.98	10,350	LSX	Buenos Aires (Argentina). (*Daily* 21.30)	
26.83	11,180	CT3AQ	Funchal (Madeira). (*Tues. and Thurs.* 11.30–13.30.)	
25.63	11,700	FYA	Pontoise (France). (*Colonial Stn. E-W, daily* 20.30.)	
25.6	11,720	VE9JR	Winnipeg (Canada). (*Daily ex. Sat. and Sun.* 18.45.)	
25.53	11,750	GSD	Empire Broadcasting, Zones 1 & 4	
25.5	11,760	XDA	Chapultepec (Mexico). (*Daily* 21.00)	
25.4	11,810	VE9GW	Bowmanville (Canada). (*Daily* 19.00)	
25.4	11,810	2RO	Prato Smeraldo, Rome. (17.00 *and* 20.30)	
25.34	11,840	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL.*)	
25.28	11,865	GSE	Empire Broadcasting, Zone 2	
25.27	11,870	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
25.4	11,933	FYA	Pontoise (France). (*Colonial Stn. N-S*)	
23.38	12,830	—	Rabat (Morocco). (*Sun.* 12.30)	
20.5	14,630	XDA	Chapultepec (Mexico). (*Daily* 20.30)	
19.9	15,075	T14NRH	Heredia (Costa Rica). (*Sat., Sun., Mon.* 17.00 *and* 22.00.)	
19.84	15,120	HVJ	Vatican State, Rome. (*Daily* 11.00)	
19.81	15,140	GSF	Empire Broadcasting, Zone 5	
19.73	15,200	DJB	Zeesen (Germany). (*Daily* 14.00–18.00)	
19.72	15,210	W8XK	East Pittsburg, Pa. (U.S.A.) (*Relays KDKA.*)	
19.68	15,244	FYA	Pontoise (France). (*Colonial Stn. E-W*)	
19.56	15,340	W2XAD	South Schenectady, N.Y. (U.S.A.) (*Daily* 19.00.)	
16.9	17,750	HSP	Bangkok (Siam). (*Sun. and Tues.* 22.00)	
16.88	17,770	GSG	Empire Broadcasting, Zone 2	
16.87	17,780	W3XAL	Bound Brook, N.J. (*Weekdays* 14.00)	
16.57	18,105	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL.*)	
14.47	20,730	LSY	Buenos Aires (Argentina). (*Sun.* 22.00)	
13.97	21,470	GSH	Empire Broadcasting, Zone 3 (*Daylight working.*)	
13.92	21,540	W8XK	East Pittsburg (*Relays KDKA.*)	

FOREIGN SUNDAY PROGRAMMES

APRIL THE THIRTIETH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Military service from York Minster. Industrial Sunday service from Canterbury Cathedral.
LONDON REGIONAL	Service from Marylebone Presbyterian Church.
MIDLAND REGIONAL	Orchestral concert.
NORTH REGIONAL	Instrumental concert.
WEST REGIONAL	Concert by the winning brass band in the Northern Counties championship.
SCOTTISH REGIONAL	Choral programme from Capel Als, Llanelly.

ABROAD

BERLIN (Deutschlandsender)	Church parade of Glasgow R.N.V.R., Territorials and Auxiliary Air Force.
BRUSSELS (No. 1)	8 p.m. Opera: "Martha" (Flotow), from the Municipal Opera House, Charlottenburg.
BRUSSELS (No. 2)	4 p.m. Choral and orchestral concert from the Mons Conservatoire. 9.30 p.m. Concert from the Maison du Peuple.
HAMBURG	10.30 a.m. Concert from the Scala.
MUNICH	11 p.m. May Night Festival (relayed by other German stations).
PALERMO	8.20 p.m. Operetta: "Boccaccio," by Suppé.
PRAGUE	8.45 p.m. Symphony concert, conducted by A. La Rosa Parodi.
ROME	8.30 p.m. "Song of the Age," by Jeremias, conducted by the composer.
SOTTENS	5 p.m. Concert relayed from the Augusteo.
STRASBOURG	3 p.m. "The Creation" (Haydn), relayed from Viége.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—8.30 p.m.,** Time Signal. **8.32,** Cecilian Instrumental Trios. **8.50,** Uilleann Pipes. **9.5,** Bass Solos by M. O'C. Maguire. **9.15,** Piano Solos by Carl Hardebeck. **9.30,** Bass Solos by M. O'C. Maguire. **9.40,** Cecilian Instrumental Trios. **10.0,** Variety Programme by John MacDonagh and Company. **11.0,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

(EAJI) 860 kc/s, 348.8 metres; 8 kW.—**12 Noon,** Chimes from the Cathedral and Weather Forecast. **2.0 p.m.,** Light Music on Gramophone Records. **2.30** (in an interval). Theatre Notes. **3.0,** Film Review followed by Sextet Concert. **4.0,** Programme for Hospitals and other Benevolent Institutions. **5.0 to 6.30,** Interval. **6.30,** Agricultural Talk in Catalan followed by Popular Music on Gramophone Records. **7.0,** Popular Concert by the Station Orchestra. **7.30,** Song Recital by A. F. Cavalliere. Arias from: (a) L'Elisir d'amore (Donizetti), (b) Carmen (Bizet), (c) L'Africaine (Meyerbeer), (d) Don Giovanni (Mozart). **8.0,** Concert by the Station Orchestra. Soloists: Paquita Gibert (Songs) and Josefa Tomas (Pianoforte). **9.0,** Dance Music relayed from Hollywood Bar. **10.0,** An Opera on Gramophone Records. **11.45,** Chess Lesson. **12 Midnight** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**10.45 a.m.,** Agricultural Talk. **11.5,** Sacred Music, relayed from the Church of San Domenico. **1.0 p.m.,** Giornale Radio. **1.10 to 2.15,** Light Music on Gramophone Records. In the interval at **1.55,** Weather Forecast, and at **2.0,** Time Signal and Announcements. **5.30 to 6.30,** Popular Music on Gramophone Records. **8.0,** Sports Notes and Giornale Radio. **8.30,** Time Signal and Announcements. **8.35** (approx.), Concert. In the interval, Reading. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**11.30 a.m.,** See **Leipzig. 12 Noon,** Concert from **Heilsberg. 12.55 p.m.,** Nauen Time Signal. **1.15** (approx.), See **Munich. 2.0,** Talk for Parents. **2.30,** Programme for Children. **3.0,** Reading (Dr. An. Brettscheneider). **3.30,** A Report of a Visit to the Fleet at Swinemünde—Inspection of the Flag Ship and a Torpedo Flotilla. **4.0,** Orchestral Concert from **Wiesbaden. 4.45,** Talk: Land Workers celebrate the First of May. **5.0,** A Million Berlin Workers on the March. **5.15,** Concert from **Wiesbaden** (contd.). **5.45,** Talk by Max Skladanowski, the Septuagenarian Inventor of the Silent Film. **6.0,** Talk: With New Flags to Victory. **6.25,** Sextet for Pianoforte and Wind Instruments (Ludwig Thuille). **7.0,** Talk on the German Youth Hostels, by Richard Schirrmann, President of the Youth Hostels Association. **7.30,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** Martha—Opéra-Comique in Four Acts (Flotow), relayed from the Municipal Opera House, Berlin Charlottenburg. In the interval at **9.27,** Weather, News, and Sports Notes. **10.55,** Weather Report for Shipping. **11.0,** Transmission for all German Stations, relayed from **Hamburg. 1.0 a.m. (Monday),** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**11.30 a.m.,** See **Leipzig. 12 Noon,** See **Hamburg. 1.15 p.m.,** See **Munich. 2.0,** Talk: Hikers and Stay-at-home Young People. **2.30,** Readings for Children. **3.0 to 3.20,** Radio Report on Gramophone Records: Through Berlin. **3.30,** Concert by Dr. Helmuth Thierfelder and his Symphony Orchestra. In the interval at **4.15,** Reading. **5.45,** Talk: Exemplary Lives. **6.5,** Hans Franck reads from his own Works. **6.25,** Trio in B, Op. 8, for Pianoforte, Violin, and 'Cello (Brahms). **7.0,** Talk on Youth Hostels. **7.30,** Transmission for all German Stations: Propaganda Day for the German Youth Hostel Movement—An Excursion into the Country—Variety Programme. **8.0,** Sports Notes. **8.5,** Orchestral Concert. **9.0,** Report on World Politics. **9.20,** Concert of German Opera Music; The Orchestra, conducted by Dr. Rudolf von Schmidtseck, the Station Choir, conducted by Maximilian Albrecht, and Constanze Nettesheim (Soprano): Overture, The Barber of Bagdad (Cornelius); Wir armen, armen Mädchen from Der Waffenschmied (Lortzing); The Spinning Chorus from The Flying Dutchman (Wagner); Wie nahte mir der Schlummer from Der Freischütz (Weber); Overture, Das Nachtlager von Granada (Kreutzer). **10.0,** Weather, News, and Sports Notes. **10.15,** Orchestral Concert from the Café Moka Efti. **11.0,** See **Hamburg. 1.0 a.m. (Monday),** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**5.45 p.m.,** Concert of Light Music by the Station Orchestra, conducted by J. Odchazel. **7.0,** See **Prague. 9.0,** See **Moravská-Ostrava. 10.0,** See **Prague. 11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 1.5 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—11.30 a.m.,** See **Leipzig, 12 Noon,** Concert from **Heilsberg. 1.15 p.m.** (approx.), See **Munich. 2.0,** News. **2.10,** Agricultural Talk. **2.30,** Talk: Ourselves and Our Ancestors. **2.50,** Programme for Children: May Songs. **3.20,** Talk: The Association for the Protection of German Culture. **3.45,** Talk: The English Disarmament Plan. **4.10,** Concert by the Station Orchestra, conducted by Bruno Janz; Soloist: Hellmut Hallendorf (Tenor). **6.0,** Reading (Robert Sabel). **6.20,** Vocal and Orchestral Concert; Soloists: Carla Müller-Bimler (Soprano), Ludwig Hess (Baritone), Kurt Hartwig (Harpsichord). **6.50,** Weather Report for Farmers. **6.55,** Sports Events for Sunday. **7.30,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** Military Band Concert. **9.15,** News. **9.25,** Report of the German Theatrical Association's Spring Festival, relayed from the Concert House. **10.0,** Time Signal, Weather Report, News, Sports Notes, and Programme Announcements. **10.20,** Radio Report of a Military Display and Fireworks, from the Stadium. **11.0,** Transmission for all German Stations, relayed from **Hamburg. 1.0 a.m. (Monday),** Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**4.0 p.m.,** Concert of Popular Music by the Station Orchestra, conducted by B. Bakala. **5.30,** Duets and Arias from Czech Operas. **6.0,** German Transmission: Variety Programme. **7.0,** See **Prague. 8.0,** Concert by a Balalaika Orchestra, conducted by E. Merkurjov. **8.30,** See **Prague. 9.0,** Reading. **9.10,** Concert by the Station Orchestra, conducted by Jan Janota. Soloists: J. Kvapil (Pianoforte), J. Holub (Violin), and J. Krenek ('Cello). **10.0,** See **Prague. 11.0** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**9.45 a.m.,** Culinary Notes. **10.0,** Concert of Light Music, by the Station Orchestra, conducted by P. Leemans. **11.0,** Gramophone Concert of Classical Music. **12 Noon,** Concert of Popular Music by the Station Orchestra. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by Mickey's Club Jazz Attraction. **1.30** (in the interval), La Cloche de Verité—Sketch (Lauville). **4.0,** Concert, relayed from the Conservatoire, Mons. The Conservatoire Orchestra and Choirs, conducted by A. de Taye. Soloists: Mlle. M. Van Neste (Pianoforte), Mlle. J. Thys (Songs) and Mlle. N. Cauwenberg (Songs). Prelude to Tristan and Isolde (Wagner); Symphonic Variations for Pianoforte and Orchestra (Franck); Songs: (a) Ah Perfido (Beethoven), (b) Romanian Song (Jorgen); Extracts from A Midsummer Night's Dream for Soloists, Choir and Orchestra (Mendelssohn); Fantasia for Mixed Choir, Pianoforte and Orchestra (Beethoven). In the interval, Football Results and Romance in F (Beethoven), on Gramophone Records. **6.15,** Gramophone Records of Variety Music. **6.45,** Programme for Children. **7.0,** Mephisto Walzer (Liszt) and Agnus Dei (Bizet), on Gramophone Records. **7.15,** Religious Address. **7.30,** Music Review. **8.0,** Concert by the Symphony Orchestra, conducted by J. Kumps. Soloist: Mme. Ervan. Overture, Le Roi d'Ys (Lalo); Poème de l'amour et de la Mer (Chausson), for Solo Voice and Orchestra. **8.45,** Rompons—Comedy in One Act (Antigeon). **9.0,** Concert (contd.). 'Cello Solo: Le Cygne (Saint-Saëns); Valse triste (Sibelius); Concerto for Pianoforte and Orchestra (Cras). **9.30,** Concert, relayed from the Maison du Peuple. Conductor: A. Andelhof. Soloist: Simone Culot (Pianoforte), M. Dumeuil (Trumpet) and L. Richard (Baritone). Dance Suite in Four Movements (Brumagne); Serenade for Trumpet, Pianoforte and String Quintet (Duvernoy); Baritone Solo: Aria from Hérodiade (Massenet); Introduction to the Fourth Act of Tzar Saltan (Rimsky-Korsakov). **11.0,** Dance Music on Gramophone Records.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish. **10.0 a.m.,** Light Music on Gramophone Records. **10.30,** Concert by the Harmonie Royale des Invalides of Antwerp, relayed from the Scala. Conductor: M. Courtain. **12 Noon,** Concert by the Mickey's Club Jazz Attraction, conducted by L. Langlois. **1.0 p.m.,** Journal Parlé. **1.10,** Concert by the Radio Orchestra, conducted by Charles Walpot. Soloist: M. Rubeau (Tenor). **5.0,** Dance Music relayed from the St. Sauveur Palais de Danse. **5.30,** Sports Notes. **6.0,** Gramophone Concert of Light Music. **6.30,** Chamber Music by the Brussels Quartet. Quartet in E Flat (Mozart); Quartet (Harsanie). **7.15,** Religious Address. **7.30,** Journal Parlé. **8.0,** Concert by the Radio Orchestra and Vocal Quartet, conducted by Charles Walpot. A. Remes (Humorist). March of the Marionettes (Hullebroeck); Third Potpourri of Waltzes (Robrecht); Overture, Le Pique Dame (Suppé); Melody (Armandola); Songs by the Vocal Quartet; Potpourri, Dividendes (Morena); Selection from Il Trovatore (Verdi); Humorous Items; Merle, et pinson, for Two Trumpets (Reynand); Selection from Wonder Bar (Katscher). In an interval at **8.45,** Recitations. **10.0,** Journal Parlé. **10.10,** Gramophone Records: Selection from Mignon (Thomas); Frühling am mühlebach (Zimmer); Waltz Suite from The Count of Luxembourg (Lehar). **10.30,** Concert by the Max Alexys Orchestra, relayed from the Ancienne Belgique.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**10.0 a.m.,** Programme for Workers. **10.30,** Religious Programme. **11.15,** Concert of Light Music. **12 Noon,** Gramophone Concert of Light Music. In the interval at **1.0 p.m.,** Radio Journal. **4.0,** Programme for Peasants. **5.0,** Light Music and Romanian Music by the Marco Orchestra. In the interval at **6.0,** Radio Journal. **7.0,** Talks and Review. **8.0,** An Operetta (to be announced). In the intervals, Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres from 6.45 p.m. to 12 Midnight.**—**9.0 a.m.,** News. **10.0,** Protestant Service. **11.0, Divine Service,** relayed from Pecs Cathedral, followed by Wireless Review. **12.30 p.m.,** Radio Report on the Relay Station in Pecs. **2.0,** Gramophone Concert of Opera Music. **3.0,** Agricultural Talk. **3.45,** Broadcast for Schools. **4.30,** News and Reports. **4.40** (approx.), 'Cello Recital by Dr. Alexander Karpathy. Andante and Largo (Tartini); Romanze (Schumann); Scherzo (Hué); Orientale (Negri); Liebeswerbung (Becker); Tarantella (Van Goens). **5.0,** Concert of Sacred Music relayed from a Church. **6.15,** Talk. **6.45,** Concert by the Budapest Concert Society, conducted by Nandor Zsolt. Overture, Véronique (Messager); Destiny (Baynes); Italian Suite (Beeve); Selection from Naïla (Delibes); Scènes de ballet (Rousseau); Bei uns in Buda (Schwarzkopf); Russian Dances (Heidelberg). **7.30,** Sports Reports. **8.15,** A Hungarian Operetta (Lorand Frater). **10.15,** News and Reports. **10.30** (approx.), Concert by the Bura Cigány Band relayed from the Hotel Dunapalota. **12 Midnight,** Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**10.0 a.m.,** Divine Service from the Cathedral. **11.30,** Weather. **11.40,** News. **12 Noon,** Time Signal and Chimes from the Town Hall. **12.2 p.m.,** Concert by Louis Preil's Instrumental Ensemble. **1.30,** Talk in English: The Economic Side of Daily Life. **1.50,** Reading in German: Hermann Hesse. **2.10,** Talk in French. **2.30,** Gramophone Concert of Variety Music. **2.55,** Programme for Children. **3.25,** Orchestral Concert, relayed from the Axelborg Studio. **5.0** (also relayed by **Skamleback on 31.51 metres**), Divine Service from Christiansborg Castle Church. **6.20,** Talk. **6.50,** Weather. **7.0,** News. **7.15,** Time and Sports Notes. **7.30,** Talk: Women in Business. **8.0,** Time Signal from the Town Hall. **8.1,** Concert by the Radio Orchestra. **9.0,** The Hansen Family—Sketch (Jens Locher). **9.15,** Song Recital by Hilmer Borgeling. **9.35,** Reading. **9.55,** Divertimento in B Flat for Two Clarinets and Bassoon. **10.15,** News. **10.25,** Orchestral Concert, conducted by Emil Reesen: Overture, Le roi d'Ys (Lalo); Intermezzo from Tiefland (d'Albert); Selection from The Queen of Spades (Tchaikovsky); Italian Caprice (Tchaikovsky). **11.0,** Dance Music by the Teddy Petersen Band, relayed from the Wivex Restaurant. In an interval at **12 Midnight,** Time and Chimes from the Town Hall. **12.30 a.m. (Monday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**12 Noon,** Variety Music. In an interval at **12.30 p.m.,** News. **4.0 to 8.0 p.m.,** Programme in English by the I.B.C. **4.0,** Programme for Children. **4.30,** Children's Club Concert. **5.0,** Club Concert for York Listeners: The Crusader March (Sousa); The Storm Fiend (Weatherley); Cathedral Chimes (Lindahl); The Mighty Deep (Jude); Two Eyes of Grey (McGeogh); In the Gloaming

(Harrison); Waltz, The Blue Danube (Joh. Strauss); War March of the Priests, from Athalia (Mendelssohn); Song of the Flea (Mussorgsky); The King went forth to War (Koeneman); The Wooden Soldier and the China Doll; Captain Mac (Sanderson); The Sea Road (Haydn Wood); The Gladiators' March (Sousa). **6.0,** Military Band Concert: Selection from The Pirates of Penzance (Sullivan); Sussex by the Sea (Ward-Higgs); The Ribbon Dance (Traditional); Tipperary (Williams); Brighton Camp (Traditional); In a Monastery Garden (Ketelbey); Selection from Iolanthe (Sullivan); Wee Macgreggor Patrol (Amers). **6.30,** Concert of Light Music by the I.B.C. (Ireland), Ltd., Orchestra: The Moon and I, from The Mikado (Sullivan); Songs: (a) The Night was made for Love (Kern), (b) When Irish Eyes are smiling; Orchestra: Selection from Lilac Time (Schubert); Songs: (a) A Little bit of Heaven, (b) A new Love is old (Harbach); Orchestra: Ballet Air (Herbert). **7.0,** Italian Songs and Orchestral Music: (a) Ah, fors è lui, (b) Io son Titania, (c) La Danza; Orchestra: Siciliana Serenata; Songs: (a) Il Bacio, (b) Villanelle, (c) Santa Lucia; Orchestra: Barcarolle from The Tales of Hoffmann (Offenbach). **7.30,** Instrumental Solos and Orchestral Music: Concertina Solos: (a) Father Rhine March (Porschmann), (b) Blaze away (Holzmann); Potpourri, Some of these Days (Brooks); Orchestra: African Lament (Gilbert); Mouth Organ Solos: (a) Here comes the Band, (b) International Medley; Banjo Solo: St. Louis Blues (Hardy); Orchestra: Mama Inez (Grenet). **8.0,** Concert of Opera and Operetta Music. **9.0 till Close Down,** Programme in English by the I.B.C. **9.0,** Organ Recital: For the Sake of the Days gone by (Wallace); A Perfect Day (Jacobs-Bond); Sweet Genevieve (Tucker); Selection of Song Hits; Who am I? (Newman); Love's Old Sweet Song (Molloy); Mother Machree (Ball). **9.30,** Concert of Light Music; Orchestra: Anitra's Dance, from the Peer Gynt Suite (Grieg); Songs: (a) She is far from the Land (Moore), (b) Street of Dreams (Young); Orchestra: Waltz, Wiener Blut (Joh. Strauss); Ocarina Solo: Under the Double Eagle (Tapiero); Chorus: Minstrel Memories, from Christy Minstrel Days; Orchestra: Softly awakes my Heart, from Samson and Delilah (Saint-Saëns). **10.0,** Light Music: The Cockchafers' Tea Party (Noack); The Hikers' Song (Longstaffe); The old Inns of England (La Touche); The Rosebeetle goes a-wooing (Armandola); Until Love comes along (Levant); Going Home (Addisell); Song of the Flame (Gershwin); The Nightingale in the Lilac Bush (Krome). **10.30,** Concert of Dance Music: Deep Water; My Darling; I'm one of the Lads of Valencia; Put a Little Springtime in the Winter of their Lives; One Little Word led to Another; This is no Dream; What did I give in return; Gipsy Moon; The Girl in the Little Green Hat. **11.0,** Fulford Concert: Orchestra: Waltz, Très jolie (Waldteufel); Songs: (a) Passing by (Purcell), (b) Green Hills of Somerset (Coates); Orchestra: (a) The Butterfly (Nevin), (b) The Grasshoppers' Dance (Buccalossi); Songs: (a) The Pipes of Pan (Monckton), (b) The Last Rose of Summer (Moore); Orchestra: Waltz, Soldatenlieder (Gungl). **11.30,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: Intermezzo Selection; It's only a step to Killarney; Charming; Nautical Moments; Mother in Ireland; Shepherd's Serenade; Waltz Favourites. **12.0 a.m. (Monday),** Club Concert for York Listeners: The Crusader March (Sousa); The Storm Fiend (Weatherley); Cathedral Chimes (Lindahl); The Mighty Deep (Jude); Two Eyes of Grey (McGeogh); In the Gloaming (Harrison); Waltz, The Blue Danube (Joh. Strauss); War March of the Priests, from Athalia (Mendelssohn); Song of the Flea (Mussorgsky); The King went forth to War (Koeneman); The Wooden Soldier and the China Doll; Captain Mac (Sanderson); The Sea Road (Haydn Wood); The Gladiators' March (Sousa). **1.0 a.m. (Monday),** Pianoforte and Song Recital: Popular Melodies on a Pianoforte (Ray); Pianoforte Solos: (a) I found you (Noble), (b) The Big Pond (Fain), Song: A Mother's Kiss; Pianoforte Solo, Let Love take care of you (van Phillipe); Fashionette; Pianoforte Solo: The Squirrel Dance (Elliot-Smith). **1.30,** Songs: My Fate is in your Hands; Melody Divine; Mona; The Skaters' Waltz; Darling old Mother of mine; Dark Red Roses; A Convict's Dream; Give me my Heart. **2.0,** Dance Music by the Beolians: Butterflies in the Rain; How deep is the Ocean; Wheezy Anna; Just because you're you; Pu-leeze Mr. Hemmingway; I'm sure of Everything but you; I guess I'll have to change my Plan; Just a little Home for the Old Folks; Young and Healthy; Bananas; Leave the Pretty Girls alone; Little Nell; Thompson's old Grey Mule; Willow Weep for me. **2.57,** I.B.C. Good-night Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—12 Noon,** Festival in Honour of the Fourth Centenary of the Reformation in Frankfurt, relayed from **Römerberg. 1.15 p.m.,** See **Munich. 2.0,** Choral Concert. **2.30,** Agricultural Notes. **2.40,** Radio Report from a Pedigree Poultry Farm, followed by Talk on Poultry-keeping. **3.30,** See **Stuttgart. 4.30,** Concert by the Municipal Orchestra, relayed from **Weisbaden. 6.0,** Talk: The Westerwald. **6.25,** Recital by Helene Claus (Songs to the Guitar) and Alfred Tibursky (Flute). **6.50,** Sports Notes. **7.0,** Radio Report from a Youth Hostel. **7.30,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** Reading (Schönaich-Carolath). **8.30,** Concert by the Station Orchestra, conducted by Reinhold Merten; Soloist: John Gläser (Tenor). **10.30,** Time, News, Weather, and Sports Notes. **11.0,** See **Hamburg. 1.0 a.m. (Monday),** Close Down.

FREDRIKSSTAD—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse).**806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.—11.30 a.m.,** See **Leipzig. 12 Noon** (from **Hanover**), Orchestral Concert: Overture, The Merry Wives of Windsor (Nicolai); Mozartjana (Kling-Flügge); Selection from Alessandra Stradella (Flotow); Serenade, Pierrette (Brase); Waltz, Tales from the Vienna Woods (Joh. Strauss); Potpourri, Dur und Moll (Schreiner). **1.5 p.m.,** Time and Weather. **1.10,** See **Munich. 2.0,** Programme for Children. **2.40,** Tales: Fresh Adventures of Baron Münchhausen. **3.0,** Musical and Literary Programme for Young Hitlerites. **3.30** (from **Hanover**), Report on the International Cycling Competition: Germany v. Belgium. **4.0,** Concert by the Hamburg Philharmonic Orchestra, conducted by Adolf Secker. Soloist: H. E. Groh (Songs). Overture, The Magic Flute (Mozart); Three Ballet Pieces (Rameau-Mottl); Aria from Don Giovanni (Mozart); Polonaise in E (Weber); Siegfried Idyll (Wagner); Suite from Vasantasena (Halvorsen); Seligkeit (Secker); Irish Rhapsody (Stanford). **5.30,** Emil von Schönaich-Carolath Literary Programme, for the Twenty-fifth Anniversary of the Poet's Death. **6.10** (from **Flensburg**), Organ Recital of the Music of J. N. David, relayed from St. Mary's Church. **6.30,** Talk on Physical Culture. **6.40,** Sports Notes. **6.50,** Weather. **7.30,** See **Berlin (Witzleben). 8.0,** Concert by the Hamburg Philharmonic Orchestra, conducted by José Eibenschütz. Soloists: H. E. Groh (Songs) and Bernhard Hamann (Violin). Serenade (Mozart); Concerto for Violin with Orchestral Accompaniment (Czernik); Overture, Donna Diana (Reznicek); Songs (R. Strauss): (a) Morgen, (b) Ständchen; Prelude to Act V of King Manfred (Reinecke); Rhapsody, Im Mai (Kämpfert); Waltz, Frauenliebe und Leben (Blon); Radetzky March (Joh. Strauss). In an interval, Announcements. **10.0,** Time, Weather, Announcements, Sports Notes, and Police Report. **10.10,** Radio Report on the Horse Show at Verden. **10.25,** See **Berlin (Witzleben). 11.0,** Transmission for all German Stations: Part I: Germanic May Night Festival of Hitlerite Youth on the Hexentanzplatz, with Speeches and Dances. Part II: Labour Day Programme; May Day Beacons; The May Day Song; German May Songs; Greeting to the May Morning.

HANOVER.—See **Hamburg.**

HEILSBERG

1,055 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.—11.30 a.m.,** Concert by the Königsberg Opera House Orchestra. **1.15** (approx.), See **Munich. 2.0,** Talk on Chess. **2.30,** Talk for Young People. **3.0,** Choral Concert. **3.30,** Radio Report of the Königsberg Spring Gymnastics Display, from the Carolinenhof Exhibition Grounds. **3.45,** Concert by the Station Orchestra, conducted by Eugen Wilcken. **5.30,** Talk: The Campaign in German East Africa. **6.0,** Vocal and Instrumental Concert. **7.0,** Radio Report from the Sarkau Youth Hostel. **7.30,** See **Berlin (Witzleben). 8.5,** Programme from **Berlin (Witzleben). 9.0,** Sports Notes and News. **9.10** (from **Danzig**), Wagner Concert arranged by the Society. The Danzig Municipal Theatre Orchestra, conducted by Erich Orthmann. Prelude to Lohengrin; Wotan's Farewell from The Valkyries; Prize Song from The Mastersingers; Prelude to The Mastersingers. **10.10,** Weather, News, and Sports Notes, followed by Concert from **Berlin (Witzleben). 11.0,** Transmission for all German Stations, relayed from **Hamburg. 1.0 a.m. (Monday),** Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—**12.40 to 5.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **12.40,** Time Signal. **12.41,** Film Review. **1.10,** Concert of Light Music by Kovacs Lajos and his Orchestra, with Songs by Bob Scholte. **2.40,** Weekly Book Talk: André Maurois. **3.10,** Concert by the Wireless Orchestra, conducted by Albert van Raalte; Soloists, Paul Frenkel (Pianoforte), Sam Swaap (Violin), and C. v. Isterdael ('Cello): Overture, Viva Carolina (Voormolen); German Dances (Schubert); Concerto for Pianoforte, Violin, 'Cello, and Orchestra, Op. 56 (Beethoven); Gramophone Records; Serenade for Orchestra (Casella); Seven Romanian Dances (Bela Bartok). **4.40,** Popular Music on Gramophone Records and Sports Notes. **5.40** till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). **5.40,** Programme for Children. **6.40,** La Boite aux Joujoux (Debussy), by P. Ketting (Pianoforte), and F. Nienhuys (Recitations). **7.30,** The Adventures of Messrs. Wakker and Tropendnit. **7.50,** Concert by De Notenkrakers. **8.38,** S.O.S. Messages. **8.40,** Programme for the First of May (Details to be announced). **12.40 a.m. (Monday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**11.10 a.m. to 5.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). **11.10,** Pontifical High Mass, relayed from a Church in **Schiedam. 1.10 p.m.,** Carillon Recital, relayed from **Bois-le-Duc. 1.40,** Talk. **2.0,** Sextet Concert. **2.50,** Talk. **3.10,** Orchestral Concert: March, Fest und treu (Fucik); Overture, Morning, Noon and Night (Suppé); Selection from Orpheus in the Underworld (Offenbach); Waltz, Accelerationen (Strauss). **3.40,** Song Recital. **3.55,** Concert (continued): Der Rose Hochzeitszug (Jessel); Selection from The Dollar Princess (Fall); Selection from Der Bettelstudent (Millöcker); Polka, Wildfeuer (Strauss). **4.25,** Song Recital (continued). **4.40,** Concert (continued): Musikalische Telegramme (Urbach); Waltz, Les Fleurs (Waldteufel); March, Heil Europa (v. Blon). **5.10,** Programme for Invalids. **5.40,** Programme of the Christian Radio Society (N.C.R.V.): Divine Service, relayed from a Church in **Drachten,** followed by Sacred Music. **8.25** till Close Down, K.R.O. Programme. **8.25,** Football Results. **8.30,** Popular Music on Gramophone Records. **8.40,** May Service, relayed from **Bois-le-Duc. 10.10,** News. **10.15,** Orchestral Concert: Overture, Patrie (Bizet); Prelude to Le Déluge (Saint-Saëns); Ballet Music from Milenka (Blockx); Suite from Der Rosenkavalier (R. Strauss); Selection from Madame Butterfly (Puccini). In the interval at **11.20,** News. **11.30,** Epilogue by the Small Station Choir.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide and Radio Concert. **8.15,** A Cookery Recipe. **8.30,** Radio Concert. **8.50** (in an interval), News Bulletin. **10.30 to 1.0 a.m. (Monday),** Programme in English by the I.B.C. **10.30,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: The Skaters' Waltz (Waldteufel); Songs: (a) Marianne (Ahlert), (b) Shall my soul pass through Ireland? Music Hall Favourites; Songs: (a) Peasant Love Song (Stamper), (b) Farewell my native Irish Home; Waltz, The Blue Danube (Joh. Strauss). **11.0,** English Concert. **12.0 Midnight,** Celebrity Concert of Gramophone Records: Rochdale Hounds, by Gracie Fields; Li'l Gal, by Paul Robeson; Pardon me Pretty Baby, by Jack Smith; If your kisses can't hold the Man you love, by Sophie Tucker; Mighty lak a rose, by Turner Layton; Only a bird in a Gilded Cage, by Florrie Forde; Wedding Bells are ringing for Sally, by Layton and Johnstone; When the rest of the Crowd goes Home, by Gracie Fields. **12.57,** I.B.C. Goodnight Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**7.0 p.m.,** Announcements and Gramophone Records of Light Music. **7.10,** Musical Programme. **7.25** (approx.) **to 10.0,** See **Warsaw. 10.0** (approx.), Variety programme from **Lwow. 11.0,** Dance Music.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by **Helsinki, 815 kc/s, 368.1 metres.—5.59 p.m.,** Time Signal and Weather Forecast. **6.10,** Concert by the Station Orchestra, conducted by Erkki Linko. **6.45,** Talk on History. **7.15,** Violin Recital by Armi Ruklander. **7.40,** Programme of Humoresques. **8.0,** Popular Music by the Station Orchestra. **8.45,** News in Finnish. **9.0,** News in Swedish. **9.15,** Dance Music, relayed from the Grand Hotel. **11.0** (approx.), Close Down.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**11.30 a.m.,** The World on Gramophone Records—An Inn in the Erzgebirge. **12.5 p.m.,** Talk: The Frontierland of Carinthia as a German Settlement. **12.30,** Reading. **1.0.** Concert, conducted by Eysoldt: Overture, Oberon (Weber); Selection from Tannhäuser (Wagner); Deutsche Grüsse (Joh. Strauss); Vater Rhein (Lincke). **2.30,** Talk: The Heavens in May. **3.0,** Talk: Towns of the Rhineland and Westphalia—Altena. **3.30,** Radio Report from **Dortmund. 4.5,** Talk: The Destiny and Career of the German Woman Abroad. **4.30,** Orchestral Concert, conducted by Breuer. In the interval from **5.10** to **5.40,** The West German Championship. **6.0,** The Meeting of the Rhenish Peasants' Association, from the Hall in the Rheinpark, Köln-Deutz. **7.0,** Programme of Songs and Music from the West German Youth Hostels. **7.30,** See **Berlin (Witzleben). 8.0,** Sports Notes. **8.10,** Das Nachtlager von Granada—Opera in Two Acts (Kreutzer). **10.40,** News and Sports Notes. **11.0,** Transmission for all German Stations, relayed from **Hamburg. 1.0 a.m. (Monday),** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—11.30 a.m.,** Ich bin ein guter Hirt—Cantata (Bach), by the Municipal and Gewandhaus Orchestra, the Choir of St. Thomas', and Soloists. **12 Noon,** Demonstration for a Wagner Memorial, relayed from the Alberthalle. The Leipzig Symphony Orchestra, and Singakademie, the Riedel and Schubert Societies. General Conductor: Dr. Ludwig Neubeck. Soloist: Rudolf Bockelmann (Baritone). **2.0,** The Brocken—Monograph on a Famous Mountain (Otto Meyer). **2.30,** Weber Pianoforte Recital by Oswin Keller: Sonata No. 2 in A Flat, Op. 39; Polacca brillante in E, Op. 72; Momento capriccioso, Op. 12. **3.0,** Political Demonstration, relayed from **Döbeln. 4.0,** Concert of Light Music. **5.30,** Füchse im Hühnerstall—Radio Play (Robert Overweg). **6.30,** Topical Programme. **7.0,** A Visit to a Youth Hostel. **7.30,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.5,** Concert from **Berlin (Witzleben). 10.5,** News Bulletin. **10.25,** Topical Programme. **10.45** Sports Report. **11.0,** Transmission for all German Stations, relayed from **Hamburg. 1.0 to 3.0 a.m. (Monday),** Wagner Concert by the Leipzig Symphony Orchestra, conducted by Ludwig Neubeck. Soloist: Margarete Baümer (Soprano). **3.0** (approx.), Close Down.

LINZ.—See **Vienna.**

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**9.0 to 10.0 a.m.,** Topical Review. **12.30 p.m.,** Concert by the Municipal Band, conducted by M. Villa. **3.0,** Chimes, Time Signal, Theatre Notes and Concert by the Artys Orchestra. **5.0 to 8.0,** Interval. **8.0,** Chimes, Radio Journal, Talk on Cervantes and Dance Music. **9.30 to 10.30,** Interval. **10.30** (approx.), Chimes and Time Signal. **10.35** (approx.), Harp Recital by Vicanor Zabaleta, followed by Song Recital by Maria del Carmen, Fernandez del Toro and Ricardo Blanco. **1.0 a.m. (Monday),** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**7.0 p.m.,** See **Prague. 9.0,** Concert of Light Music by the Station Orchestra, conducted by Richta. **10.0,** See **Prague. 11.0** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nurnberg, 1,256 kc/s, 239 metres.—11.30 a.m.,** See **Leipzig. 12 Noon,** Concert from **Heilsberg. 12.55 p.m.,** Time, Weather, and Programme Announcements. **1.15,** Springtime in the Palatinate—Choral and Orchestral Concert, with Addresses, relayed from the Market Place, St. Ingbert. **2.5 p.m.,** Popular Music on Gramophone Records with Commentary. **3.5,** Zither Recital by the One-handed Player, Josef Zachmeier. **3.20,** Chess Lesson. **3.45,** The Cosy Corner. **4.20,** Orchestral Concert. **5.40** (from **Nurnberg**), Choral and Orchestral Concert on the Fifth Centenary of the Battle of Rötz in the Russite War. **6.35,** Talk. **6.55,** Weather and Sports Notes. **7.0,** Choral Concert. **7.30,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** Talk on Johannes Brahms. **8.20,** Boccaccio—Operetta in Three Acts (Suppé). **10.20,** Time, Weather, News, and Sports Notes. **11.0,** See **Hamburg. 1.0 a.m. (Monday),** Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 560 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.—10.20 a.m.,** Chimes and Divine Service from the Fagerborg Church. **5.0 p.m.,** Concert by the Oslo Women's Choir, conducted by Arild Sandvold. **5.45,** Talk on Albert Schweitzer. **6.15,** Pianoforte and Violin Recital. **6.45,**

Parliamentary Notes. 7.15, Weather and News. 7.30, Song Recital. 8.0, Time Signal. 8.1, Recitations. 8.50, Concert of Modern English and French Music, by the Station Orchestra, conducted by Hugo Kramm. Soloist, Reginald Paul (Pianoforte). 9.40, Weather and News. 10.0, Topical Talk. 10.15, Concert (contd.): Fra by til bygd (Olsen); Selection from Der Bettelstudent (Millöcker); Mattinata (Leoncavallo); Serenade (Heykens); Violin Solos: Aftenröster (Svendsen); Czardas (Monti); Siamesische Wachtparade (Lincke). 11.0 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**10.25 a.m.,** Religious Address. **10.40,** Sacred Music. **11.5,** Agricultural Talk. **12.45 p.m.,** Giornale Radio. **1.0,** Concert of Light Music. In the interval at **1.30,** Time, Announcements and Weather. **2.0 to 5.30,** Interval. **5.30,** Variety Music on Gramophone Records. **6.30 to 8.0,** Interval. **8.0,** Dopolavoro Announcements and Giornale radio. **8.25,** Popular Music on Gramophone Records. In the interval at **8.30,** Time and Announcements. **8.45,** Symphony Concert, conducted by A. La Rosa Parodi: Sixth Symphony in G (Beethoven); Talk; Symphonic Variations, Carnevale di Venezia (Tommasini); Siegfried Idyll (Wagner); The Steel Foundry (Mossolov). After the Concert, Light Music on Gramophone Records. **10.55,** News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 **metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**1.0 p.m.,** News Bulletin. **1.15,** Weather Report. **1.30,** Concert by Jean Dos and his Orchestra: Waltz, Tales from the Vienna Woods (Joh. Strauss); Espagne (Badenès); Minuet (Vidal); Selection from Lakmé (Delibes); Si petite (Claret); Neapolitan Serenade (d'Ambrosio); Entr'acte from Act IV of Carmen (Bizet); Dances Nos. 1 and 3 (Brahms). **6.45,** Le Journal Parlé. **7.45,** Programme for Children. **8.20,** Weather Report. **9.30,** Gramophone Concert of Light Music. **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**9.45 a.m.,** Bible Reading. **10.0,** News. **10.5,** Sponsored Concert. **11.40,** Popular Music on Gramophone Records. **12 Noon,** Interval. **12.15 p.m.,** Sponsored Concert. **12.45,** Sponsored Talk. **12.50,** Half-an-Hour of Fantasy by Paul Weill. **1.20,** Interval. **1.30,** Sponsored Programme. **2.0 to 6.45,** Interval. **6.45,** Journal Parlé. **7.0,** Sports Notes. **7.15,** Light Music on Gramophone Records. **7.30,** Catholic Review. **8.0,** Popular Music on Gramophone Records. **8.15,** Interval. **8.30,** A Revue by Max Reguier and his Company. **9.0,** Interval. **9.15,** Literary Programme—Readings from the Poems of Villon, Billaud, Géraldy, de Musset, Baudelaire, Fort, Ponchon, and Nustorg. **9.45,** Songs by a Vocal Quartet. **10.15,** Light Music on Gramophone Records. **10.30,** News.

PARIS

RADIO PARIS; Call CFR; 174 kc/s, 1,725 metres; 75 kW.—**7.45 a.m.,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **8.30,** Physical Culture. **10.0,** Elementary Book-keeping Lesson. **10.20,** Advanced Book-keeping Lesson. **10.40,** Spanish Lesson. **12 Noon,** Religious Address by the Reverend Father Lhande: The Wise Virgins. **12.20 p.m.,** Sacred Music on Gramophone Records. **12.30,** Bilboquet as a Valuer. **12.45,** Press Review, News, and Weather. **1.0,** Gramophone Concert of Light Music. **3.0 to 5.0,** Programme in English by the I.B.C. **3.0,** Orchestral Concert. Mr. T. St. A. Ronald announcing. March, Fame and Glory (Matt); Musical Comedy Waltz Selection (arr. Hall); Selection from Casanova (Strauss); Waltz from L'enfant prodigue (Wormser); Selection from Wild Violets (Stolz). **3.30,** Gramophone Concert. **4.0,** Tea-Time Variety Hour. Mr. S. H. C. Williams announcing. **6.30 to 7.0,** Programme in English by the I.B.C. Radio Ball, with Stanley Holloway (Comedian); Young and Healthy; Moon Song; It's Winter again; Play, Fiddle, Play; The Girl in the Little Green Hat; My Darling. **7.0,** Concert of Light Music. **8.0,** Music Hall Programme. In the intervals at **8.30,** News, Sports Notes, and Weather; and at **9.15,** Press Review and News. **10.30** (approx.), Close Down.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**9.30,** Vesper Services from Shadyside Presbyterian Church. **10.30,** Pages of Romance, from **New York.** **11.0,** Programme to be announced. **11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** Brahms Anniversary Programme, from **New York.** **12.0 p.m., Midnight,** Time Signal and Jack Pettis and his Orchestra. **12.30 to 3.15 a.m. (Monday), New York** Relay. **12.30,** Great Moments in History. **1.0,** The Land where the Good Songs go. **2.0,** Twenty Thousand Years in Sing Sing. **2.30,** Walter Winchell. **2.45,** Pickens Sisters. **3.0,** Phil Dewey and his Fireside Songs.

PORSGRUND—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**11.0 a.m.,** Orchestral Concert, relayed from **Kosice, 1,022 kc/s, (293 metres). 12 Noon,** Chimes. **12.5 p.m.,** A Revue with Dance Music. **1.30,** Consulting a Village Doctor—Radio Scene. **2.0,** Agricultural Report. **2.15 to 2.25,** Social Report. **4.0,** See **Brno.** **5.30,** Talk: A Spring Stroll through the Courtyards of Prague Castle. **5.45,** Light Music on Gramophone Records. **6.0,** German Programme by the Station Orchestra, and Soloists: Symphonic Poem, Mazeppa (Liszt); Spring—Song Cycle for Soprano and Orchestra (Fincke); Symphonic Poem for Tenor, Soprano and Orchestra (Fincke). In the interval, News in German. **7.0,** Brass Band Concert. **8.0,** Popular Songs. **8.30,** Song of the Age—Radio Rhapsody in Five Acts (Kares). Music by Jeremias. The Station Orchestra, conducted by the Composer. **9.0,** Time Signal. **9.1,** See **Moravská-Ostrava.** **10.0,** Time Signal. **10.1,** News and Sports Notes. **10.20,** Light Music on Gramophone Records. **11.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.**—**3.0 p.m.,** The Creation—Oratorio (Haydn), relayed from the Hotel de la Poste, Viège. **6.30** (from **Lausanne**), Religious Address. **7.0** (from **Fribourg**), Organ Recital by M. Gogniat, relayed from the Cathedral of St. Nicholas. **7.40** (from **Lausanne**), News Bulletin. **8.0** (from **Lausanne**), Dramatic Programme. **9.0,** Concert by the Radio Suisse Romande Orchestra. **10.0,** News and Weather. **10.15** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO; 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.**—**10.10 a.m.,** News, Sports Notes, and Amusement Guide. **10.30,** Agricultural Talk. **10.45,** Bible Reading. **11.0 to 12 Noon,** See **Turin.** **12.30 p.m.,** Orchestral Concert. **1.30 to 2.30,** Orchestral Concert. **4.0,** See **Turin.** In the intervals, Talk and Sports Notes. **7.30,** Football Report, Dopolavoro Notes, and News. **8.0,** Time and Announcements. **8.30,** Sports Report. **8.40,** Variety Concert. Part I: Extracts from L'Amico Fritz—Opera (Mascagni). Part II: Il cavallino rosso—Musical Comedy in One Act (Lucio d'Ambra, Music by Bonavolonta). Reading in the interval. News after the Programme.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**8.0 to 10.0 p.m.** (approx.), **New York** Relay. **8.0,** Wayne King's Orchestra. **8.30,** Hour of Worship. **9.0,** Singing—the Well-spring of Music. **9.15,** Wildroot Institute. **9.30 to 10.0** (approx.), Temple of Song. **12.45 a.m. (Monday) to 3.45, New York** Relay. **12.45 a.m.,** Twenty Fingers of Harmony. **1.0,** Chase and Sanborn Hour. **2.0,** Musical Programme. **2.30,** American Album of Familiar Music. **3.0,** Our Government, by David Lawrence. **3.15,** Musical Programme. **3.45,** Seth Parker's Neighbours, from **New York,** followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres,** and **Berne, 1,220 kc/s, 245.9 metres.**—**7.15 p.m.** (from **Zürich**), Talk: The Aletsch Forest. **7.45** (from **Zürich**), Gala Concert for the Opening of the New Studios. **9.30,** News Bulletin. **9.40** (from **Zürich**), Extracts from Swiss Festival Plays. **10.15** (from **Zürich**), Sports Notes and Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

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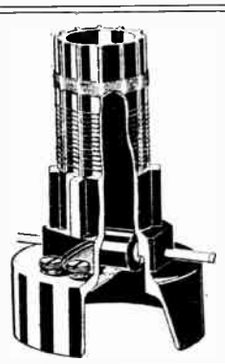

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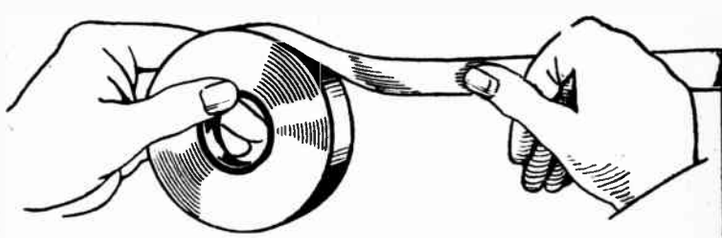

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Weather and News. 7.30, A Spring Morning—Play (Tor Hedberg). 8.0, Orchestral Concert. 9.0, Relay of the Students' May Night Festivals at Uppsala. 9.30, Reading. 9.45, Weather and News. 10.0, Dance Music by the Helge Lindberg Band. 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**9.30 a.m.,** Orchestral Concert, conducted by Maurice de Villers. **10.45,** Protestant Service in French. **11.30,** Catholic Service in German. **12 Noon,** Variety Music on Gramophone Records. **12.45 p.m.,** News Bulletin. **1.0,** Time Signal. **1.1,** Popular Music on Gramophone Records. **1.15,** Agricultural Talk in French. **1.30,** Roquefort—a Radio Report from a Cheese Factory, relayed from **Toulouse, 1,175 kc/s (255 metres)**—Descriptions, Interviews, Songs and Dances. **3.0,** Festival for the Opening of the Asparagus Season, relayed from **Hoerdt**—Choral and Band Music. **5.0,** Gramophone Records of Popular Music. **5.15,** Sacred Concert, relayed from St. Paul's Church. Soloists: M. Rupp (Organ), M. Grégoire (Violin) and M. Roskam ('Cello). First Movement from the Sixth Symphony for Organ (Widor); Bible Reading; Grave and Lento assai for Organ, Violin and 'Cello; Organ Solo: Elevation (Couperin); Assez lente from the Trio, Op. 112 (Raff); Religious Address; Adagio from the Sixth Symphony for Organ (Widor); Adagio cantabile from Trio No. 1 (Beethoven); Prayer Fantasia in G Minor for Organ (Bach). **6.15,** Medical Talk in French. **6.30,** Sports Talk in French. **6.45,** Light Music on Gramophone Records. **7.30,** Time Signal. **7.31,** News Bulletin. **7.45,** Orchestral Concert, conducted by Maurice de Villers. **8.15,** Press Review in German. **8.30,** Le Cid—Tragedy in Five Acts in Verse (Corneille), with Incidental Music by Massenet. In the interval at **9.30,** Press Review in French. **11.0,** Dance Music from the Savoy. **12 Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER; 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.—11.30 a.m.,** See **Leipzig. 12 Noon,** Concert from **Heilsberg. 12.30 p.m.** (from **Mannheim**), Rehearsal of the Swabian Whitsuntide Musical Festival. **1.15** (approx.), See **Munich. 2.0,** The Historic Night of January 30th, 1933—A Sequence on Gramophone Records. **2.30,** Gramophone Concert of Popular German Melodies. **3.0,** Choral Concert from **Emmendingen. 3.30,** Programme for Young People. **4.30,** See **Frankfurt. 6.0,** Sports Notes. **6.15,** An Entertainment on Gramophone Records. **7.0,** Radio Report from a Tübingen Youth Hostel. **7.30,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** See **Frankfurt. 10.30** (approx.), Time, News, Weather, Programme Announcements, and Sports Notes. **11.0,** Transmission for all German Stations, relayed from **Hamburg. 1.0 a.m. (Monday),** Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**12.15 p.m.,** News and Exchange. **12.30,** Catholic Service. **1.0,** Entertainments Guide and Market Prices. **1.5,** Music by a Viennese Orchestra. **1.15,** Light Music. **1.30,** Orchestral Music. **1.45,** Protestant Service. **2.15,** News. **2.20,** Operetta Music. **2.45,** Agricultural Report. **3.0,** Popular Songs. **3.15,** News and Racing Results. **3.20,** Music by a Viennese Orchestra. **3.30,** Opera Music. **4.0,** Symphony Music. **4.15,** Racing Results and News. **4.20,** Sound Film Music. **4.30,** Dance Music. **5.0,** Airs from Operettas. **5.15,** News and Racing Results. **5.20,** Light Music. **5.30,** Instrumental Solos. **5.45,** Orchestral Music. **6.0,** News Bulletin. **6.15,** Opera Music. **6.30 to 7.0,** Programme in English by the I.B.C., W. Brown Constable announcing. Concert of Popular Music: Selection from Congress Dances; My Heart to let; Freddy the Freshman; Puss, Puss, Puss; I'm Playing with Fire; Someone to care for; Can't do without Love; Round about Sundown. **7.0,** Violin Solos. **7.15,** News and Racing Results. **7.25,** Local News. **7.30,** Opera Music. **7.45,** Music by a Viennese Orchestra. **8.15,** Sound Film Music. **8.30,** Military Music. **8.45,** Accordion Music. **9.0,** Two Symphonic Poems (Respighi): (a) Pini di Roma, (b) Le fontane di Roma. **9.30,** Popular Songs. **9.45,** Chamber Music. **10.0,** Music by an Argentine Orchestra. **10.15,** North African News. **10.30 to 12 Midnight,** Programme in English by the I.B.C. **10.30,** Variety Half-Hour: Selection of Old Favourites; Take a Pair of Sparkling Eyes; The Lost Chord; Some Famous Songs of Mark Sheridan; Daisy, Daisy, give me your answer do; Annie Laurie; Roamin' in the Gloamin'; March of the Grenadiers, from The Love Parade; Where Maggie caught her Cold. **11.0,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: Waltz, Wienerblut (Joh. Strauss); Song, One more Day (Pepper); Selection from The Vagabond King (Friml); Cornet Solo: I hear you calling me (Nevin); Songs: (a) Let's play at pretending, (b) Mother Machree; Irish Set Dance. **11.30,** Dance Music: Marching along together; I want to go Home; There's Something about a Soldier; I may never pass your way again; Cavalcade Selection; Have you ever been lonely?; Can't we meet again? **11.57,** I.B.C. Good-night Melody. **12 Midnight,** News, Weather and Announcements. **12.5 a.m. (Monday),** Popular Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**9.40 a.m.,** See **Turin. 9.55,** Mass from the Cathedral of San Giusto. **11.0,** Religious Address. **11.20 to 11.40,** Agricultural Talk. **12.30 p.m.** (approx.), till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.—9.40 to 9.55 a.m.,** Giornale Radio. **10.40,** Agricultural Talk. **11.0,** Mass from the Church of the Annunciation, Florence. **12 Noon to 12.15 p.m.,** Bible Reading. **12.30,** Variety Music on Gramophone Records. In the interval at **1.0,** Time and Announcements. **1.30 to 2.30,** Gramophone Concert of Variety Music. **4.0,** Il Trovatore—Opera (Verdi). Sports Notes in the interval. **6.15 to 6.30** Sports Report. **7.0,** Time and Dopolavoro Notes. **7.10,** Gramophone Records of Light Music. **8.0,** Announcements, Giornale Radio and Sports Report. **8.20,** Gramophone Records (contd.). **9.0,** Variety Programme. **10.0** (approx.), Relay of the Festival of Calendinazzio from Assisi. **11.0,** Giornale Radio.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.—11.30 a.m.,** Symphony Concert, conducted by Martin Spörr. The Vienna Symphony Orchestra and Bela Kinrina (Soprano). Symphony, Ländliche Hochzeit, Op. 26 (Carl Goldmark); Three Songs from Des Knaben Wunderhorn: (a) Ein neues Pilgerlied, (b) Die widerspenstige Braut, (c) Antwort Mariä auf den Gruss der Engel; Scherzo (Ivan Langetroth); Hungarian Dances in G Minor and D (Brahms). **12.45 to 2.0 p.m.,** Concert of Light Music. **2.30,** Gramophone Records of Variety Music. **3.0,** Time and Programme Announcements. **3.5,** Review of Books. **3.30,** Chamber Music by the Popa-Grama Quartet: String Quartet in C Minor, Op. 18, No. 4 (Beethoven); String Quartet in D, No. 2 (Franz Graeflinger). **4.30,** Talk: Travel Reminiscences of India. **5.0,** Afternoon Concert. **6.50,** Josef Martin Bauer reads from his own Works. **7.20,** Time, Sports Notes and Programme Announcements. **8.0,** Poverty-Tragedy (Anton Wildgans). **9.50,** News and Announcements. **10.5,** Concert by the Ludwig Werba Orchestra.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.7 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Weather Forecast. **12.15,** First Part of the Symphony Concert relayed from the Philharmonic. The Warsaw Philharmonic Orchestra, conducted by B. Wolfstal. Soloist: Mme. Meyer (Pianoforte). Overture, The Hebrides (Mendelssohn); Pianoforte Concerto in A Minor (Schumann). **1.0,** Dramatic Programme relayed from **Wilno, 533 kc/s (563 metres). 2.** Concert relayed from **Lwow, 788 kc/s (381 metres). 2.40,** Agricultural Talk. **3.0,** Announcements. **3.5,** Relay from **Lwów** (contd.). **3.20,** Song Recital by Mme. Orlowska. **3.40,** Relay from **Lwów** (contd.). **4.0,** Programme for Children. **4.25,** Light Music on Gramophone Records. **4.40,** Talk: Rambles and Excursions for Children. **5.0,** Recital by J. Kantinski (Violin), C. Zelechowski (Baritone) and L. Urstein (Pianoforte). Concerto in D Minor, Op. 7, for Violin and Pianoforte (Leclair); Songs: (a) Aria from The Demon (Rubinstein), (b) Song from Benvenuto Cellini (Diaz), (c) Song (Rostworowsky); Violin and Pianoforte: Suite, Much Ado about Nothing (Korngold). In the interval: Announcements. **5.55,** Programme Announcements. **6.0,** Light Music, relayed from the Café Ziemianska. In the interval: News. **7.0,** Miscellaneous Items. **7.25,** Dramatic Programme. **8.0,** Concert by the Station Orchestra. In the interval: Sports Notes. **10.0,** Humorous Programme, relayed from **Lwów. 10.55,** Weather Forecast and Police Notes. **11.0,** Dance Music relayed from the Bodega Dance Hall. **12 Midnight** (approx.) Close Down.

ZURICH.—See **Schweizerischer Landessender.**

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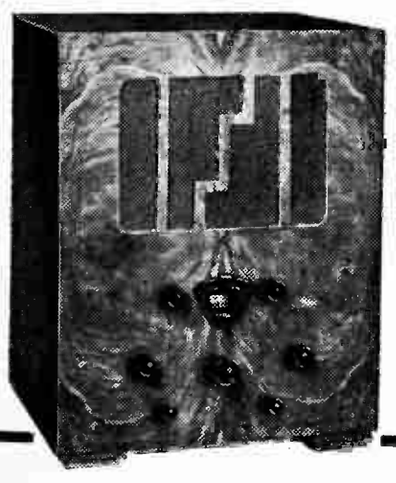

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MONDAY
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PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Opening night of Covent Garden Opera Season : Act 3 of "Der Rosenkavalier" (Strauss)
LONDON REGIONAL	"Miscellany," a feature programme by C. Dennis Freeman.
MIDLAND REGIONAL	Military Band concert from Bingley Hall, Birmingham.
NORTH REGIONAL	Orchestral concert by Manchester's Unemployed Musicians.
SCOTTISH REGIONAL	A Varsity Vaudeville programme.
BELFAST	Irish folk music and Uilleann Pipe programme.

ABROAD

BERLIN (Deutschlandsender)	9.30 a.m. Labour Day programme (relayed by other German stations).
BUDAPEST	7.45 p.m. Concert of Hungarian music, conducted by E. Dohnanyi.
COPENHAGEN	10.15 p.m. The Radio Orchestra, conducted by Lanny Grondahl.
HILVERSUM	9.55 p.m. The Wireless Orchestra, conducted by Nico Treep.
LEIPZIG	8 p.m. Brahms concert, by the Symphony Orchestra.
RADIO-PARIS	8 p.m. Opera : "L'Africaine," by Meyerbeer.
ROME	5.30 p.m. Concert from the Royal Philharmonic Academy.
TURIN	9 p.m. Concert conducted by Ugo Tansini (relayed also from **Florence, Genoa, Milan, and Trieste**).
WARSAW	8 p.m. Operetta : "The Chocolate Soldier," by Oscar Strauss.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.**—**1.30 p.m.,** Time Signal, Weather Report, Stock Report, and Gramophone Concert. **6.0,** Programme for Children. **6.45,** News. **7.0,** Gaelic Talk. **7.15,** Poultry Talk. **7.30,** Time Signal. **7.32,** Violin and Song Recital by P. Delaney and Mme. Helferman. **8.0,** The Curing of William Henry—Play, by the Ulidian Players. **8.15,** Music by the Station Orchestra. **8.30,** Aunt Jane listens in—Play, by the Ulidian Players. **8.45,** Baritone Solos by Myles Kelly. **9.0,** Music by the Station Orchestra. **9.30,** Desmond Crean (Entertainer). **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

EAJ1, 860 kc s, 348.8 metres; 8 kW.—Labour Day—no transmission.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Notes, Tourist Talk and Dopolavoro Announcements. **8.20,** Giornale Radio. **8.25,** Weather Forecast. **8.30,** Time Signal. Announcements and Popular Music on Gramophone Records. **9.0,** See **Turin. 10.0,** Talk. **10.15,** Light Music on Gramophone Records. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessendar.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**11.0 a.m.,** Programme Announcements, followed by Light Music on Gramophone Records. **11.20,** Tide Report, followed by Popular Music on Gramophone Records. **11.57,** Time Signal and Chimes. **12.5 p.m.,** Concert by the Station Orchestra: March (Jakl); Potpourri of Serbian Music (Remdia); Selection from In the Well (Blodek); Overture, Fra Diavolo (Auber); Suite, Poèmes de mai (Mouton); Rhapsody, España (Chabrier); Waltz, Moonlight on the Alster (Fetras). In the interval at **12.35,** Exchange. **1.30,** News Bulletin. **3.0,** Reading for Children. **3.30,** Light Music on Gramophone Records. **4.0,** Concert by the Station Orchestra: Overture, Beim Tanz (Urban); Potpourri (Sedlacek); Melody (Binicki); Barcarolle (Grünfeld); Selection from La Mascotte (Audran); Potpourri, Major and Minor (Schreiner). **5.0,** A Dialogue in German. **6.55,** Time Signal and Programme Announcements. **7.0,** Popular Music on Gramophone Records. **7.50,** Introductory Talk to the following Transmission. **8.0,** An Opera relayed from the National Theatre. In an interval at **9.30** (approx.), News Bulletin.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc s, 1,635 metres; 60 kW.—**9.15 a.m.,** News Bulletin. **9.30,** A Radio Report by German Workers from the Ruhr, Hamburg, Franconia, the East Mark, the Silesian Frontier and the Saar. Talks by Miners of the Ruhr, Transport and Dock Workers from Hamburg, Vineyard Workers of Franconia, Land Workers from the Eastern Frontier, Miners from Silesia, and Workers of the Saar. **10.0,** Musical Programme. **10.15,** Relay of the Demonstration of German Youth from the Berlin Lustgarten, with Introduction. Hymns by the Berlin Choral Society (1,200 Singers). Address by Dr. Goebbels, Minister for Propaganda and Enlightenment. Deutschlandlied. **11.0,** See **Heilsberg. 12.30 p.m.,** Weather Report for Shipping. **12.55,** Nauen Time Signal. **1.30,** Concert by the Wind Instrument Orchestra. Part I: Nazi Marching Songs; Part II: Peasants' and Miners' Songs. **2.40,** Talk: The First of May, as it was and as it will be. **3.0,** Reading of Poems by Worker Poets. **4.0,** Symphony of Work (Hans Windt), conducted by the Composer. **4.45,** By their Deeds shall ye know them—Satirical Radio Sequence. **5.30,** Radio Report on the Reception of a Deputation of German Workers and Farmers by Herr Hitler. **5.45,** Musical Interlude: Miners', Peasants', and Soldiers' Songs. **6.5,** Radio Report (contd.). **6.20,** Wir führen die Arbeit—Radio Sequence (Eugen Diesel). **7.30,** Government Report. **8.0,** Celebration of National Labour Day, relayed from the Tempelhof Feld: Song: Der Gott, der Eisen wachsen liess; Planting of an Oak in Honour of Herr Hitler by a Delegation of Young Hitlerites, to the Accompaniment of the Horst Wessel Lied; Inaugural Address by Dr. Goebbels; Address by Herr Hitler; Tattoo and Massed Choirs: Ich bete an die Macht der Liebe; Fireworks. **10.0,** Weather, News and Sports Notes, followed by Programme of Light Music and Dance Music. In an interval at **10.45,** Weather Report for Shipping. **3.0 a.m. (Monday),** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**9.30 a.m. to 11.0 a.m.,** and **1.30 p.m. to 3.0 a.m. (Tuesday),** Transmission for all German Stations relayed from **Berlin (Deutschlandsender).**

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**8.0 a.m.,** Programme relayed from **Paris (Ecole Supérieure), 671 kc/s, 447.1 metres. 12.45 p.m.,** Concert of Popular Music. **2.0,** Light Music on Gramophone Records. **5.0,** Language Lesson and Literary Talk. **6.15,** Radio Journal. **6.30,** News, Exchange and Market Prices. **7.40,** Talk: Bordeaux a Hundred Years Ago. **7.55,** Lottery Results. **8.0,** Programme for Children. **8.15,** News Bulletin. **8.30,** Concert by the Symphony Orchestra, conducted by A. Guitraud. Soloists: René Lafont and M. Marigny.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**5.30 p.m.,** Choral Concert. **6.15,** Concerto for Violin, Viola and Pianoforte (Mozart). **6.45,** Reading. **6.55,** News. **7.0,** See **Prague. 9.0,** See **Brno. 10.0,** See **Prague. 11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.**—**9.30 to 11.0 a.m.** (approx.), Transmissions for all German Stations, relayed from **Berlin (Deutschlandsender). 11.30,** Concert, conducted by Fritz Hänsler. **1.0 p.m.,** The Enrolment of Young Hitlerites on the Schuhbrücke—a Radio Report on Gramophone Records. **1.30** (approx.) **to 3.0 a.m.** (Tuesday), Transmissions for all German Stations, relayed from **Berlin (Deutschlandsender). 3.0 a.m.** (Tuesday), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**6.0 to 6.45 p.m.,** German Transmission: First of May Programme. An Address, Reading, Labour Songs and Recitations. **8.15,** See **Prague. 9.0,** Radio Report. **10.0,** See **Prague. 11.0** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**10.0 a.m.,** Fanfare of Trumpets, followed by the Internationale (on Gramophone Records). **10.5,** Talk by the Minister de Bouckère: Labour Day. **10.15,** Running Commentary on the First of May Demonstrations, relayed from Liege and Verviers. In the intervals, Popular Music on Gramophone Records. **12 Noon,** Variety Music on Gramophone Records, with Accordion Solos in the intervals. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans. Overture, Orphens in the Underworld (Offenbach); Waltz from Gretna Green (Guirand); La Voix des Cloches (Luigini); Selection from Manon (Massenet); Sicilienne and Rigaudon for Violin (Francoeur-Kreisler); Poursuite amoureuse (Kalkman); Selection from La Poupée (Audran); Ballet Music from Hérodiade (Massenet). **5.0,** Concert by the Radio Orchestra, conducted by Charles Walpot. March (Weyts-François); Waltz, The Blue Danube (Strauss); Overture, Solidarité (Weyts); Selection from Roses of Picardy (Haydn Wood); The Arrival of the Circus (Rust); Une Marche (Walpot). **5.30,** Programme for Children. **6.0,** Talk: The Rising Generation. **6.15,** Gramophone Concert of Light Music, with Interludes by a Double Vocal Quartet. **7.15,** Labour Day Review. **7.30,** Theatre and Film Review. **8.0,** Concert by the Station Orchestra, conducted by Charles Walpot: The Internationale (De Geyter); Overture (Weyts); Waltz, España (Waldteufel); Footballers' March (Bury); Two Songs from The Dreigroschenoper (Weill), on Gramophone Records: Selection from White Horse Inn (Benatzky); Foxtrot and One-step (Oberfeld). **8.45,** Literary Programme. **9.0,** Concert by the Symphony Orchestra, conducted by Meulemans: March from The Loves of the Three Oranges (Prokofiev); Selection from Maximilien Robespierre (Litolff); Military March (Schubert). After the Concert, Chaliapin Gramophone Records: (a) Song of the Volga Boatmen (arr. Chaliapin), (b) Song of the Viking Guest, from Sadko (Rimsky-Korsakov), (c) How goes it Prince, and Song of Prince Galitsky, from Prince Igor (Borodin). **10.0,** Le Journal Parlé. **10.10,** Gramophone Records of Light Music. **10.57,** The Internationale.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**9.0 a.m.,** Concert, with Recitations by Ada Selmar and Louis Belloy. **10.0 to 12 Noon,** Interval. **12.0,** Organ and Song Recital by J. Jong and Albert de Booy (Baritone). **1.0 p.m.,** Journal Parlé. **1.10,** De Zee roept—Play, with Music by Ernst Busch. **2.0,** Concert by the Vara Mandoline Society and Balalaika Orchestra, conducted by Ivan Povarjef; Soloists, J. Jong (Organ), Albert de Booy (Baritone), and F. Nieuhuys (Recitations): Mandoline Society: (a) March (Kok), (b) Morgenrood (Nobel), (c) Mattinata (Leoncavallo), (d) La belle Conchitta (Joline); Organ Solos: (a) Whistling Mose (Hossman), (b) Minuet (Boccherini), (c) Valse vanité (Wiedoeft), (d) Wedding March (Mendelssohn); Recitations; Balalaika Music: (a) March, Rasluka (Bojardin), (b) Czardas (Povarjef), (c) Russian Melody; Recitation; Baritone and Organ: (a) Cavatina from Faust (Gounod), (b) Vilja's Song from The Merry Widow (Lehár), (c) Melody (Martini), (d) Air (Romberg). **3.0 to 5.0,** Interval. **5.0,** Concert by the Symphony Orchestra, conducted by Meulemans: Overture, Ruy Blas (Mendelssohn); Overture, 1812 (Tchaikovsky); Selection from Robespierre (Litolff); Overture, Charlotte Corday (Benoit). **5.45,** Programme for Children. **6.30,** Programme to be announced. **7.30,** Programme by Pierreke Pirrewit. **8.0,** Concert by the V.A.R.A. Philharmonic Orchestra and De Fierefluiters; Soloists, Ernst Busch (Songs), Hekkert van Eysden (Soprano), Jef Van Schoeland (Baritone), and Jo Sternheim (Recitations): Overture, William Tell (Rosini); Tenor Solos: (a) Volk, ontwaak (Gaveaux), (b) Houdt moed (Uyttenboogaard), (c) Roode vlag (Jan Broecks), (d) Goden (Olman); Waltz, Dorfschwalben aus Oesterreich (Jos. Strauss); Recitations; Overture, Die Fledermaus (Joh. Strauss); Valse triste (Sibelius); Caprice italien (Tchaikovsky); Talk; Concert Waltz (Glazunov); Baritone Solos: (a) Air from The Seasons (Haydn), (b) Semailles (Gonblier); Homage March (Grieg); Four Songs; Talk; Three Songs; The Socialist Anthem, L'internationale (De Geyter-Eisler). In an interval, Journal Parlé.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert by the Station Orchestra: Florentine March (Pucik); Overture, Marinarella (Pucik); Waltz, Wiener Bonbons (Joh. Strauss); Selection from Il Travatore (Verdi); Selection from Madame Bonfince (Lacome). **6.0,** Radio Journal. **6.15,** Concert (contd.): Suite (Travaglia); Symphonic Andante (Clemus); Intermezzo (O. Fetras). **7.0,** Talks. **7.40,** Gramophone Records of Light Music. **7.55,** Time Signal. **8.0,** Quartet in G (Dvorak), by the Sarvas Quartet. **8.30,** Talk. **8.45,** Recital on Two Pianofortes by Mesdames Mitzi Klein Hintz and Ortrun Bruckner: Sonata (Bach); Suite (Arensky). **9.15,** Trio in G Minor (Smetana), by the Sarvas Trio. **9.45,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW.—Also relayed on **840 metres** from **7.45 p.m. to 12 Midnight. 12 Noon,** Chimes. **12.5 p.m.,** Military Band Concert, conducted by R. Fricsay. **1.30.** Gymnastics Lesson. **3.30,** Programme for Students. **4.0,** Programme for Women. **5.0,** Orchestral Concert, conducted by Stefan Bertha. Soloist: Tibor Weygand (Songs). **6.15,** German Lesson. **6.45,** Cymbal Recital by Andreas Olah. **7.15,** Talk on the City of Adria. **7.45,** Concert of Hungarian Music, conducted by Ernst Dohnanyi. **9.15,** News. **9.20** (approx.), Concert by the Arpad Toll Cigany Band, relayed from the Kovacsevics Restaurant. In the interval at **10.10,** Weather Report. **11.0,** Concert relayed from the Café Simplon. **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time Signal and Chimes from the Town Hall. **12.2 p.m.,** Concert by the Max Skalka String Ensemble, relayed from the Hotel d'Angleterre. **2.0 to 3.20,** Interval. **3.20,** Talk for Housewives. **3.30,** Concert by the Mogens Hansen Instrumental Ensemble: Overture, The Brewer of Preston (Adam); Waltz from Coppélia (Delibes); Selection from The Bartered Bride (Smetana); Flirtation (Steck); Romance in E (Jersholt); Waltz (Launer); Overture, Die schöne Galathée (Suppé); Selection from Die Puppenfee (Bayer); Intermezzo, Colombine (Dufort); Waltz, Je t'aime (Waldteufel); Serenade in E (Rygaard); March, The Handicap (Rosey). In an interval, Reading (Erik Hoffman). **5.40,** Exchange and Fish Market Prices. **5.50,** Talk on Education. **6.20,** English Lesson. **6.50,** Weather. **7.0,** News. **7.15,** Time. **7.30,** Talk. **8.0,** Time Signal from the Town Hall. **8.1,** Concert by the Radio String Orchestra, conducted by Lanny Grondahl: Suite from The Gordian Knot untied (Purcell); Concerto No. 5 for String Orchestra (Rameau). **8.30,** Talk: The Life of H. C. Andersen, with Readings from Diaries and Letters. **9.10,** Weyse Song and Pianoforte Recital by Johanne Karstens and Folmer Jensen: Pianoforte Solos, Two Etudes; Four Songs; Pianoforte Solo, Allegro di bravura in D Minor. **9.45,** Reading. **10.0,** News. **10.15,** Concert by the Radio Orchestra, conducted by Lanny Grondahl: Slav Rhapsody in G Minor (Dvorak); Symphonic Dances Nos. 1 and 4 (Grieg); Rhapsodic Dance, Bamboula (Coleridge-Taylor); Polish Rhapsody (Fitelberg). **11.0,** Dance Music by the Jens Warny Band, relayed from the Nimb Restaurant. In an interval at **12 Midnight,** Time Signal and Chimes from the Town Hall. **12.30 a.m. (Tuesday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**12 Noon,** Gramophone Concert of Light Music. **12.30 p.m.,** News. **12.45,** Concert of Music from Sound Films. **5.30 to 7.0,** Programme in English by the I.B.C. Announcers: C. Danvers-Walker and B. McNabb. **5.30,** Concert for Hastings and Eastbourne Listeners: We're Friends Again (Turk); Songs: (a) I'm in the Seventh Heaven (de Sylva), (b) Am I blue? (c) Little Pal, (d) Wishing and Waiting for Love; The Ragpicker's Party; Songs: (a) Just Plain Folk (Gilbert), (b) Sleep, Baby, Sleep (Tucker), (c) I'll never

ask for more (Ahlert), (d) Hello, Sunshine (Murray); Baby's Birthday Party (Ronell). **6.15,** Orchestral Concert, with Organ Accompaniment, for Chichester and Bognor Listeners; Waltz Medley, Around the Volga (Borchert); Elégie (Masseuet); The Skaters' Waltz (Waldteufel) Largo (Handel); Waltz, Tales from the Vienna Woods (Joh. Strauss); In a Monastery Garden (Ketelbey); Bells across the Meadows (Ketelbey); Selection of Haydn Wood's Songs; The Phantom Melody (Ketelbey); Waltz from The Gipsy Princess (Kalman). **7.0,** Radio Gazette. **7.15,** Local News. **7.30,** Popular Music on Gramophone Records. **7.45,** The Listeners' Hour. **8.50,** News. **9.0,** Variety Concert. **10.0** till Close Down. Programme in English by the I.B.C.; Dance Music by the Ibcolians; Song of Happiness; Goopy Geer; This is the Missus; Home; The Thrill is gone; Rio de Janeiro; Meet me To-night in the Cowshed; I'm for you a Hundred per Cent.; Honest, really truly; Mausie, In the Jailhouse now; Must it end like this? Oh, Monah! To-day I feel so happy; I don't know why. **11.0,** Orchestral Concert: Colonel Bogey (Alford); The Rose Beetle goes a-wooing (Armandola); On Wings of Song (Mendelssohn); Siciliana Serenata (Schmalstich); Poème (Fibich); The Whistler and his Dog (Pryor); In the Mystic Land of Egypt (Ketelbey); Wee MacGregor Patrol (Amers). **11.30,** The Studio Chorus; Come to the Fair; Quartet: Ready for the River; Selection from The Bohemian Girl; Quartet: The Sun is at my Window; A Perfect Day; Three for Jack; The Rogue Song. **12 Midnight,** Club Concert for Bridlington Listeners: Bells Across the Meadows (Ketelbey); Boots (McCall); Old Time Jigs and Reels; Auld John Braddleum; The Drum-Major (Newton); The Gay Highway (Drummond); Policeman's Holiday (Ewing); Archie of the R.A.F. (Longstaffe); The Driver of the 8.15 (Longstaffe); Turkey in the Straw; In a Persian Market (Ketelbey); Stonecracker John (Coates); The Wheelbarrow's Song (Wolseley Charles); The Elephant March (Ord Hume). **1.0 a.m. (Tuesday),** Accordion Music: Senorita (Civelier); Mona Lisa (Carter); Whistling Waltz (Reeves); Selection from Congress Dances (Heymann); C'est un petit nid (Eblinger); J'aime la musique (Parsons); Little Green Heaven; Les bas à pointes (Letebre). **1.30,** Vocal Trios: Bubbling over with Love; Painting the Clouds with Sunshine; A Bench in the Park; Waltz, My Florence; Laughing at the Rain; A Pair of Blue Eyes; I'll always be true; Mazurka; Lido Lady. **2.0,** Dance Music by the Ibcolians; It's no Use, I'm in Love; The World is so Small; The Village Band; Mediterranean Madness; Overnight; Sheltered by the Stars; Cheerful little Earful; You've got me in the Palm of your Hand; Just a Little Home for the Old Folks; I can't believe it's true; Fit as a Fiddle; Her Name is Mary; You're my everything; Roll along, Kentucky Moon. **2.57,** I.B.C. Good-night Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; **Cassel, 245.9 metres;** and **Trier, 259.3 metres.—9.30 a.m. to 11.0 a.m.,** and **1.30 p.m. to 3.0 a.m. (Tuesday),** Transmissions for all German Stations, relayed from **Berlin (Deutschlandsender).** In the interval at **10.0,** News, Weather, and Sports Notes. **3.0 a.m. (Tuesday),** Close Down.

FREDRIKSSTAD—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), 806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres.; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.—6.35 a.m.** (from **Bremen**), Chimes from the Cathedral and Orchestral Concert, relayed from the Harbour. **8.15,** Time, Weather and News. **8.30,** Concert of Bird Music: Songs of the Thrush, Chaffinch, Titmouse, Wren, Robin, Yellow Hammer, Tree Sparrow, Starling, and Skylark. **9.30** (approx.) to **3.0 a.m. (Tuesday),** Transmission for all German stations relayed from **Berlin (Deutschlandsender).**

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW., and **Danzig, 662 kc/s, 453.2 metres.—9.30 a.m.** (approx) to **11.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 11.0,** Military Band Concert, conducted by Ferdinand Koruhn, relayed from **Königsberg.** Der Torgauer Marsch; Army March No. 7; March, Soldaten-Abschied (Lindemann); Potpourri, O Deutschland hoch in Ehren (Lindemann); March: In der Heimat, da gibts ein Wiedersehen (Rust); Der Hohenfriedberger Marsch; York March (Beethoven); March, Der Königgrätzer (Pielke); German War March, Feldgrau (Gruss); Bavarian March Past (Scherzer); Petersburger Marsch; Alexandermarsch; Army March No. 168 (Leonhardt); Marsch der Langen Kerls (Roland); Der Jäger aus Kurpfalz (Rode); Two Marches: (a) Army March No. 9 (Duke of Brunswick), (b) Prussian Fanfare (Koruhn). **1.30 p.m.** (approx) **to 3.0 a.m. (Monday),** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).**

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.10 a.m.,** Organ and Song Recital by Frans Hasselaar and J. Nelissen (Baritone). Chaconne in C Minor (Buxtehude). Songs: (a) Five Little Poems (v. d. Horst), (b) O Jesu vol genade (Hansen), (c) Paaschlied (Jansen). **11.40,** Talk: May 1st Celebrations throughout the Centuries. **12.10 p.m.,** Organ and Song Recital (contd.): Prelude and Fugue on the Name B.A.C.H. (Liszt); Five Songs: Improvisation (Hasselaar). **12.40,** Time Signal. **12.41,** Concert by the Wireless Orchestra, conducted by Nico Treep: March, The Diplomat (Sousa); Overture, Czar and Carpenter (Lortzing); Vecchio minuetto (Sgambati); Serenata napoletana (Sgambati); Selection from La Bohème (Puccini); O schöner Mai (Joh. Strauss); Scottish Patrol (Williams); Entry of the Spring Flowers (Kockert); Spring in Japan (Jessel); Dance (Heykens); Waltz, Golden Rain (Waldteufel); Selection from A Kiss in Spring (Kálmán). In an interval at **1.25,** Popular Music on Gramophone Records. **2.55,** Interval. **3.10,** Pianoforte Recital by Egbert Veen. **3.40,** Light Music on Gramophone Records. **4.40,** Talk with Gramophone Illustrations. **5.10,** Lieven Duvolse Song Recital by Hélène Cals, with the Composer at the Pianoforte. **6.10,** Concert by a Children's Choir, conducted by Jacob Hamel. Soloist: Pierre Palla (Organ). **7.10,** Book Review. **7.40,** Reading. **8.10,** Interval. **8.15,** Light Music on Gramophone Records. **8.25,** Talk: The Development of the Telephone in Holland. **8.40,** Time Signal. **8.41,** News. **8.45,** Scenes from The Father of the Fatherland—Radio Play (Veterman). **9.55,** Concert by the Wireless Orchestra, conducted by Nico Treep. Soloists: Irene Eisinger (Soprano) and Helge Rosswänge (Bass); Soprano Aria from The Huguenots (Meyerbeer); Bass Aria from The Huguenots (Meyerbeer); Duet from Martha (Flotow); Polish Dance from Eugene Onegin (Tchaikovsky); Bass Aria from Il Trovatore (Verdi). **10.55,** Popular Music on Gramophone Records. **11.10,** Concert by the Kovacs Lajos Orchestra. Soloist: Bob Scholte (Songs). In an interval at **11.40,** News. **12.40 a.m. (Tuesday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW. Programme of the Christian Radio Society (N.C.R.V.).—**11.10 a.m,** Divine Service. **11.40,** Religious Address. **12.10 p.m.,** Popular Music on Gramophone Records. **12.40,** Police Notes. **12.55,** Light Music on Gramophone Records. **1.10,** Organ Recital by Jan Zwart: Potpourri of Popular Melodies; Symphony No. 2 (Widor); Potpourri of Popular Melodies; Symphony No. 5 (Widor); Potpourri of Popular Melodies. **2.40,** Light Music on Gramophone Records. **3.15,** Horticultural Talk. **3.55,** Dressmaking Lesson. **4.10,** Millinery Lesson. **4.25 to 4.40,** Interval. **4.40,** Bible Reading and Sacred Music by M. Smit Duyzentkunst (Baritone) and H. Smit Duyzentkunst (Organ). **5.40,** Concert by the Arnhem Orchestral Society. Conductor: Jaap Spaanderman. Soloist: H. van Oort (Songs); Snite, Oud Nederland (Röutgen); Four Old Dutch Songs (Röntgen); Variations on a Dutch Song De drie ruiterties (Voormolen); Javanese Rhapsody (Schäfer); Two Songs (Tetterode); (a) Geloof, (b) Niet voor Niet; Dutch Rhapsody, Piet Hein (van Anrooy). **7.10,** Answers to Correspondence. **7.40,** Police Notes. **7.55,** Religious News. **8.10,** Answers to Correspondence. **8.40,** Gala Programme in Honour of H.R.H. Princess Juliana's Birthday, relayed from the Concertgebouw, Amsterdam: Overture; Address by M. Grimm; Bass Solos: (a) Gebed voor het Vaderland (Spoel), (b) Folk Song (Kuiler), (c) Ons Vorstenhuis (Tieroliff); Talk; Male Voice Choir: (a) Heer die de Tente des Hemels spreijt (Roeske), (b) 't Geuzenvendel op den thuismarsch (Roeske); March, Alte Kameraden (Teike); Overture, Blaze Away (Smith); Choir: (a) Matrozenlied (Hol), (b) Ons Hollandsch (Zweers); Address by M. Bouma; Bass Solos: (a), Vaderlandsch lied (Tijssen), (b) Eigen Land (Weissenborn), (c) Gelukig is het land (Valerius); Finale. In the interval at **9.55** (approx.), News Bulletin. **11.25,** Concert by the Amsterdam Orchestral Society, conducted by M. F. van Diepenbeek; March, Orange Nassau (Kessels); Festival Overture (Leutner); Waltz, Gold and Silver (Lehár); Selection from La Fille de Madame Angot (Lecocq); March, Freiheitsjubel (Blankenburg); Light Music on Gramophone Records; Fantasia, Holland in Song and Dance (Ooomes); Hungarian Comedy Overture (Kéler-Béla); March, Heil Europa (Blon). **12.40 a.m.** (Tuesday), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News, Financial Notes and Racing Results. **8.10,** Sports Notes. **8.30,** Radio Concert. **9.0,** Weather Report and News Bulletin. **9.15,** Provençal Programme. **12 Midnight to 1.0 a.m. (Tuesday),** Programme in English by the I.B.C. **12 Midnight,** Concert of Light Music: The Song of Songs (Moya); Songs: (a) Like a Breath of Springtime (Burke), (b) Just you, just me (Green); Chorus, Wine, Woman and Song (Joh. Strauss); Songs: (a) I'm a specialist (Sale), (b) Taught me how to play second fiddle (Dahl); Serenade (Heykens). **12.30 a.m.,** Dance Music: How do you do, Mr. Brown?; Put a little Springtime in the Winter of their lives; I'm one of the Lads of Valencia; How are you?; Do you recall?; Let's all dance the Polka; Can't we meet again? **12.57,** I.B.C. Good-night Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**7.0 p.m.,** Talk on Amateur Photography. **7.15,** Hunting Notes. **7.30,** See **Warsaw. 9.45,** Answers to Technical Correspondence. **10.0,** See **Warsaw.**

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—**7.0 p.m.,** Time, Weather, and News. **7.30,** Divine Service. **8.0,** News. **8.10,** Popular Concert. **8.40,** Political Review. **9.0,** Concert of Chamber Music. **9.30,** Talk on Finance. **9.50,** Sports Notes. **10.0,** Popular Concert. **10.30** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**9.30 a.m. to 11.0 a.m.,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 11.0,** See **Heilsberg. 12 Noon,** Beethoven Symphony Concert by the Station Orchestra, conducted by Buschkötter: Soloist: Willy Külser (Pianoforte); Overture, Coriolanus; Pianoforte Concerto in E Flat; Symphony in B Flat. **1.30 p.m. to 3.0 a.m. (Tuesday),** Transmissions for all German Stations, relayed from **Berlin (Deutschlandsender).**

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres, 120 kW.; and **Dresden, 941 kc/s, 319 metres.—9.30 a.m. (Monday) to 3.0 a.m. (Tuesday),** See **Berlin** (Deutschlandsender). 3.0 (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**6.0 p.m.,** Quintet Concert. **7.0,** Esperanto Lesson. **7.30,** Serbo-Croat Lesson. **8.0,** Programme relayed from **Belgrade. 9.0,** Weather and News. **10.30,** Close Down.

LWOW

788 kc/s, 381 metres; 16 kW.—**3.35 p.m.,** Light Music on Gramophone Records. **4.0,** The Letter Box. **4.15,** Light Music on Gramophone Records. **4.25 to 6.20,** See **Warsaw. 6.20,** Topical Talk. **6.25,** See **Warsaw. 7.0,** Talk: Fifteen Minutes in a Library. **7.15,** Miscellaneous Items. **7.30 to 9.45,** See **Warsaw. 9.45,** Talk. **10.0 to 11.30,** See **Warsaw. 12 Midnight** (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South-East. **8.35,** Instrumental Concert. News after the Programme.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** Concert of Popular Music. In the interval at **11.45,** Radio Chronicle. **12.35 a.m. (Tuesday),** Notes on Bull Fighting. **12.40,** Light Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424. metres; 2 kW.—**3.0 p.m.,** Chimes, Time Signal, Weather Forecast and Theatre Nntes. **3.15** (approx.), Concert: Pasodoble, El gato montés (Penella); Gavotte from Mignon (Thomas)); Après un rêve (Fauré); Selection from Eva (Lehár); Duet from La Dolores (Breton-Codina); Tango, Confession (Discépolo); Waltz, España (Waldteufel); Hymn to the Sun (Rimsky-Korsakov); Selection from Luisa Fernanda (Torroba); I'll see you again (Coward); Caprice viennois (Kreisler); Selection from La Gioconda (Ponchielli); March from The Prophet (Meyerbeer). **4.55,** Programme Announcements. **5.0 to 8.0,** Interval. **8.0,** Chimes, Exchange Quotations and Radio Journal. **9.15,** News Bulletin. **9.30** (approx.), Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**7.0 p.m.,** See **Prague. 9.0,** See **Brno. 10.0,** See **Prague. 11.0** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg and Kaiserslautern, 536 kc/s, 560 metres,** and **Nürnberg, 1,256 kc/s, 239 metres.—9.30 to 11.0 a.m.** (approx.), and **1.30 p.m. to 3.0 a.m. (Tuesday),** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).**

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.—5.0 p.m.,** Concert of Chamber Music by the Station Ensemble—M. Oscar Gustavson (Violiu), M. Oscar Heigar (Viola), Mlle. Hendriksen (Pianoforte), M. Leif Rustad ('Cello), and M. Schubert (Harmonium). **6.0,** German Lesson. **6.30,** Talk. **7.0,** Announcements, Weather Forecast, and News Bulletin. **7.30,** Programme to be announced. **8.0,** Time Signal. **8.1,** Programme to be announced. **9.40,** Weather Report and News Bulletin. **10.0,** Topical Talk. **10.15,** Programme to be announced. **11.0** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. **8.20,** Variety Music on Gramophone Records. In the interval at **8.30,** Time and Announcements. **9.0,** See **Turin.** After the Programme, Light Music on Gramophone Records. **10.55,** News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals). **6.45 p.m.,** Theatre Review. **7.0,** Le Journal Parlé. **8.20,** Weather Report. **8.30,** Extracts from Operettas by Hirschmann and Mathé (a) La petite Bohème, (b) Epouse-là, (c) Fouche, (d) Les Linottes. **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.55,** Journal Parlé. **7.0,** Hot Jazz on Gramophone Records. **7.30,** Popular Music on Gramophone Records. **8.0,** Science Talk. **8.5,** Talk on Motoring. **8.15,** Interval. **8.30,** Sponsored Concert. **10.40,** News.

PARIS

RADIO-AGEN, 662.1 kc/s, 453 metres; 0.5 kW.—**8.0 p.m.,** Concert of Light Music: Glorias (Pettorossi); Federacion (Canero); Souvenir lorrain (Bellanger); Le Trésor de Paris (Andolfi); March, I love a Parade (Arlen); Melody (Drescher); Sérénade espagnole (Glazunov); Pièce en forme de habanera (Ravel); Moi j'adore ça (Roger); Paris qui brille (Varna); La Pavane (Delormel); Quand les lilas refleuriront (Auriol); Tonka (Schisicklain); Kasbek; Melody (Huré); Sur la butte (Padilla). In the interval at **8.30,** News, Exchange, Market Prices and Weather Report. After the Programme, Sports Notes.

PARIS

RADIO LL, 810 kc/s, 370.4 metres; 1.2 kW.—**7.0 p.m.,** News, Review of the Latest Gramophone Records, Gastronomic Review, Anecdotes. Poetry Competition, followed by Economic Notes and Racing Results. **7.45,** Sponsored Concert of Songs. **8.15,** Announcements. **8.30,** Gramophone Concert: Danse Macabre (Saint-Saëns); Polonaise brillante (Wieniawsky); Selection from La Gioconda (Ponchielli); Selection from Mefistofele (Boito); Moonlight Sonata (Beethoven); Concerto in D (Vivaldi). **9.0,** Political Talk. **9.30,** Concert, conducted by Pierre Blois: Larghetto (Kreisler); Ballet Music from Rosamunde (Schubert); Ballad in A Flat (Chopin); Pastorale (Mozart); Toccatina (Scarlatti); Songs from (a) Fortunio (Messager), (b) Gwendoline (Chabrier), (c)

Le Roi malgré lui (Chabrier); Symphonic Poem, Psyché (Franck); Redemption (Franck).

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Concert of Opera and Ballet Music by the Radio Paris Orchestra. Overture, Béatrice et Bénédict (Berlioz); Selection from I Puritani (Bellini); Aria from Der Freischütz (Weber); Chorus from Don Pasquale (Donizetti); The Miserere Duet from Il Trovatore (Verdi); Selection from Hulda (Franck); Church Scene from Faust (Gounod); Selection from Ariane (Massenet); Polonaise and Chorus from Boris Godunov (Mussorgsky); Selection from Etienne Marcel (Saint-Saëns); Siang Sin (Iflée); Suite de danses (Pierné). In the intervals at **1.0,** Exchange, News and Weather, and at **1.30,** Exchange. **2.0,** Exchange. **3.45,** Exchange and Market Prices. **5.10,** Agricultural Talk. **6.30,** Elementary English Lesson. **6.50,** Film Review. **7.5,** Review of New Books. **7.20,** Concert by the Radio Paris Orchestra. March and Cortège from The Queen of Sheba (Gounod); Divertissement on Russian Songs (Rabaud); Miramar (Turina); En la Giralda (Turina). **7.45,** Commercial Prices and News. **8.0,** L'Africaine—Opera (Meyerbeer). In the intervals at **8.30,** News and Weather; at **8.40,** Review by Reboux, and at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**7.30 p.m.,** Health Talk by Dr. Royal S. Copeland. **7.35,** KDKA Home Forum. **8.0,** Betty and Bob, from **New York. 8.15,** Monday Matinee, from **New York. 8.45,** Human Values. **9.0,** Teaberry Baseball Scores. **9.5,** Business News. **9.15,** Programme to be announced. **9.30,** Weather Report. **9.32,** Market Report. **9.45,** Lois Miller, in Folk Songs. **9.57,** David Lawrence Dispatch. **10.0,** Teaberry Baseball Scores. **10.5,** Programme to be announced. **10.15,** Dick Daring, from New York. **10.30,** The Singing Lady, from New York. **10.45,** Little Orphan Annie. **11.0,** Booth Tarkington's Maude and Cousin Bill, from New York. **11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** KDKA Orchestra. **11.45 to 3.0 a.m.** (Tuesday), **New York** Relay. **11.45,** Today's News, by Lowell Thomas. **12.0 midnight,** Pepsodent Amos 'n' Andy. **12.15 a.m.** (Tuesday), Townsend Murder Mystery. **12.30,** Five Star Theatre—Marx Brothers. **1.0,** Clipnot Club Eskimos. **1.30,** Time Signal and Don Carney—Talk for Dog Lovers. **1.45,** Phil Cook and the Ingram Shavers. **2.0,** Sinclair Minstrels. **2.30,** Jack Frost Melody Moments. **3.0,** Dr. Curtis Howe Springer.

PORSGRUND—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.9 kW.—**5.0 p.m.,** See **Warsaw. 5.55,** Natural History Talk. **6.0,** See **Warsaw. 6.20,** Programme for Soldiers. **7.5,** Miscellaneous Items and News. **7.28,** Time Signal. **7.30,** Miscellaneous Items. **7.45,** See **Warsaw.** In the intervals, Theatre Notes and Programme Announcements. **9.45,** Light Music on Gramophone Records. **10.0,** Time, Sports Notes, and Police Announcements. **10.15** (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.0 p.m.,** Military Band Concert, relayed from a Park in **Královská Obora:** Sokol Festival March (Suk); Overture, Peter Schmoll (Weber); Selection from The Jacobin (Dvořák); Military March (Fhlir); Strauss Operetta Potpourri (Schlögl); Gondoliera (Zamrzla); Ballet Music from The Bartered Bride (Smetana); Peasant Songs (Aust); Indian Love Call from Rose Marie (Friml); Czech Song and Liberty March (Hasler). **5.30,** Reading from the Diary of K. H. Mácha. **5.45,** Programme of May Poetry for a Speaking Choir. **6.0,** German Transmission: First of May Address and Song Recital. **7.0,** First of May Address. **7.15,** Concert by the Typographia Choir. In the interval, Programme of May Poetry for Speaking Choir. **8.15,** A Scéne from the Life of Macha. **9.0,** Time Signal. **9.1,** See **Brno. 10.0,** Time Signal. **10.1,** News and Sports Notes. **10.15,** Czech Jazz on Two Pianofortes. **11.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.: **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.**—**12.28 p.m.,** Time Signal from Neuchâtel Observatory. **12.30,** News Bulletin and Weather Forecast. **12.40** (from **Geneva**), Variety Music on Gramophone Records. **1.40** (from **Geneva**), Financial Bulletin. **1.45 to 3.28,** Interval. **3.28,** Time Signal from Neuchâtel Observatory. **3.30** (from **Lausanne**), Concert by the Radio Lausanne Quintet. **4.15** (from **Lausanne**), Talk. **4.30** (from **Lausanne**), Concert of Rural Music by Edouard Moser and his Orchestra. **5.0 to 6.0,** Interval. **6.0** (from **Lausanne**), Programme for Children. **6.30** (from **Lausanne**), German Lesson. **7.0** (from **Lausanne**), Weather Forecast, News and Announcements. **7.30** (from **Lausanne**), Talk, with Gramophone Illustrations. **8.0** (from **Geneva**), Variety Concert by the Broadcasting Serenaders, conducted by J. Pasche. **9.0,** Popular Concert by Edouard Moser and his Peasant Orchestra. **10.0,** News Bulletin and Weather Forecast. **10.10** (from **Geneva**), Talk: The Work of the League of Nations. **10.30** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.**—**1.0 to 2.15 p.m.,** Gramophone Records of Variety Music. In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Children's Radio Review. **5.10,** Announcements. **5.15,** Exchange and Giornale Radio. **5.30,** Orchestral Concert, conducted by Vincenzo Di Donato, relayed from the Royal Philharmonic Academy. **7.0 (Naples),** Shipping and Sports Notes. **7.10,** Agricultural Report and Dopolavoro Notes. **7.20,** Giornale Radio. **8.0,** Time, Announcements and Gramophone Records of Light Music. **8.15,** Duets by Maria Teresa Barboni (Soprano) and Gino Del Signore (Tenor). **8.30,** Sports Notes and Tourist Report. **9.0,** See **Turin. 10.0,** Talk. **10.15,** Orchestral Concert. A Wedding Trip (May); Autumn (de Curtis); Surdate nammurate (Cannio); Come un raggio di sole (Fusco); Nocita (Lualdi); Chitarra muta (di Lazzaro); Tell me tonight (Spoliansky); A' 'nfrascata (Lama); Amore di bambola (Lualdi); Baby (Abel); Duet: Tienete a posto (Orlocchio); Lady (Abel); Bolero del Picador (Belletti); Te si scurdate 'e Napule (Nardella); Fez (Mascheroni). **10.55,** News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**9.0 p.m.,** Book News. **9.15,** Radio School of the Theatre. **9.45 to 10.0** (approx.). Lady Next Door, from **New York. 12.45 a.m. (Tuesday),** Stock Reports. **1.0,** Socouyland—Sketch. **1.30,** National Opera Concert. **2.0,** A & P Gipsies. **2.30,** Paul Whiteman's Orchestra. **3.0,** Contented Programme. **3.30,** WGY Players, followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**12.28 p.m.,** Time Signal from Neuchâtel Observatory. **12.40** (from **Basle**), May Greetings—Gramophone Concert. **1.35** (from **Basle**), Weather and Exchange. **1.45 to 3.30,** Interval. **3.30** (from **Zurich**), Concert of Light Music. **4.0** (from **Basle**), Concert by the Radio Quartet. **5.0** (from **Basle**), Old and New Dance Music on Gramophone Records. **5.30,** Weather. **5.35 to 6.30,** Interval. **6.30** (from **Zurich**), Talk. **7.0,** Time and Weather. **7.15** (from **Zurich**), English Lesson. **7.50** (from **Zurich**), Concert by the Swiss Radio Orchestra. **8.15,** The Human Voice. **9.0,** Orchestral Concert (contd.). **9.30,** Weather and News, followed by Dance Music. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**5.5 p.m.,** Popular Music on Gramophone Records. **6.0,** Concert by the Lund Students' Choir. **6.45** (from **Sundsvall**), Variety Programme. **7.15,** Weather and News. **7.30** (from **Ostersund**), Military Band Concert, conducted by Verner Lindström. March (Lindström); Overture, La belle Hélène (Offenbach); Waltz, Dämmerstunden (Cranz); Selection from Vedda (Metra); Près-d e toi (Gounod); Potpourri (arr. Lindström); Air from Aruljot (Petersen-Berger). **8.30,** Talk. **9.0,** Variety Programme. **9.45,** Weather and News. **10.0,** A Walk in Spring. **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Gramophone Records of Classical Music. **12.45 p.m.,** News Bulletin. **1.0,** Time Signal. **1.1,** Exchange. **1.5,** Light Music on Gramophone Records. **2.0 to 5.0,** Interval. **5.0,** Dance Music. **6.0,** Literary Talk in French. **6.15,** Topical Talk in German. **6.30,** Orchestral Concert, conducted by Maurice de Villers: March, The Circus comes to Town (Rust); Waltz, Over the Waves (Rosas-Pachernegg); Overture, The Caliph of Bagdad (Boieldieu); Selection from Passionément (Messager); 'Cello Solo: Serenade from Les Millions d'Arlequin (Drigo); Little Suite (Kálmán); March, Dawn of Freedom (Lotter). **7.30,** Time Signal. **7.31,** News. **7.45,** Light Music on Gramophone Records. **8.15,** Press Review in German. **8.30,** Concert of Modern Music: Quintet for Harp, Flute, Violin, Viola, and 'Cello (Cras); Songs: (a) La Flûte (Groviez), (b) Chanson de Jouvence (Casadesus), (c) Au pays des vieilles lunes (Delmas); L'eau qui rêve (Delmas); Sextet for Strings (Adam). **9.30,** Press Review in French. **9.45** (approx.), Concert, conducted by Georges Jacquet, relayed from the Café Moll, Mulhouse: Overture, Maritana (Wallace); Waltz, Très jolie (Waldteufel); Italian Ballet Suite (de Bozi); Selection from The Girl in the Taxi (Gilbert); Andante and allegro for Violin and Viola (Mozart); Tes yeux (Bonincontro); Selection from La Fille de Madame Angot (Lecocq); March, Radio Strasbourg (Méline). **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—National Labour Day. **9.30 to 11.0 a.m.,** See **Berlin (Deutschlandsender). 11.0** News Bulletin. **11.10,** May Day Festival. **1.30 to 10.0 p.m.,** See **Berlin (Deutschlandsender). 10.0,** Time, News, Weather and Programme Announcements. **10.20,** May is here—a Radio Report of the Students' Festival, relayed from the Market Palace of Tübingen (on Gramophone Records). **10.50** (approx.), Dance Music and Light Music from **Berlin (Deutschlandsender). 3.0 a.m. (Tuesday),** Close Down.

SUNDSVALL.—See **Stockholm.**

TALLINN

1,004 kc/s, 298.8 metres; 11 kW.—**4.45 p.m.,** Variety Music on Gramophone Records and Advertising Notes. **5.0,** Review of Foreign Affairs. **5.15,** Popular Music on Gramophone Records. **5.45,** News Bulletin. **6.0,** Concert by Krilloys Mandoline Quintet: Selection from William Tell (Rossini); Barcarolle (Mezzacapo); Aubade printanière (Lacombe); Viennese Waltz (Andrejev). **6.30,** Reading (Arnold Vaino). **7.0,** Weather Report and Time Signal. **7.5,** Concert, conducted by A. Krull; Soloists: Artur Rinne (Baritone) and F. Nikolai (Pianoforte). **8.30,** Old Time Dance Music on Gramophone Records. **9.0,** Dance Music by Jnk Holst and his Orchestra, relayed from the Gloria Palais de Danse.

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**6.0 p.m.,** News. **6.15,** Opera Music. Selection from: (a) La Dame blanche (Boieldieu), (b) The Bartered Bride (Smetana), (c) Griséldis (Massenet). **6.30,** Symphonic Poem, Les Préludes (Liszt). **6.45,** Music by an Argentine Orchestra. **7.0,** Instrumental Solos. **7.15,** Racing Results, Market Prices and News. **7.25,** Local News. **7.30,** Operetta Music. **7.45,** Light Orchestral Music. **8.0,** Popular Melodies. **8.15,** Military Music. **8.30,** Sound Film Music. **8.45,** Accordion Music. **9.0,** Extracts from Rigoletto—Opera (Verdi). **9.30,** Dance Music. **10.0,** Melodies from Operettas. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Popular Concert. **11.30 to 12 Midnight,** Programme in English by the I.B.C. **11.30,** Strauss Waltz Programme: Waltzes from Vienna; Roses from the South; Wienerblut; Frühlingsstimmen; Tales from the Vienna Woods; A Waltz Dream (O. Strauss); Wine, Woman and Song. **11.57,** I.B.C. Goodnight Melody. **12 Midnight,** News, Weather and Announcements. **12.5 a.m. (Tuesday),** Music by a Symphony Orchestra. **12.15,** Military Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.30 p.m.** till Close Down. See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**5.30 p.m.,** See **Rome.** After the Relay, Giornale Radio, Agricultural and Dopolavoro Notes. **7.0,** Time, Tourist Report, and Gramophone Records of Light Music. **7.20,** Giornale Radio. **7.45,** Gramophone Records (contd.). **8.0,** Announcements, Giornale Radio, Weather Report, and Popular Music on Gramophone Records. **8.45,** Literary Report. **9.0,** Orchestral Concert, conducted by Ugo Tansini. Soloist: Aureliano Pertile (Tenor). **10.0,** A One-Act Comedy, followed by Gramophone Records of Popular Music. **11.0,** Giornale Radio.

VATICAN CITY

15,120 kc/s, 18.84 metres (Morning); and **5.969 kc/s, 50.26 metres (Evening);** 10 kW.—**11.0 to 11.15 a.m.,** Religious Information in Italian. **8.0 to 8.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres.**—**9.55 a.m.,** The National Anthem, by the National Opera House Choir. **10.0,** Reading of Worker's Poetry. **10.30,** Wind Instrument Concert by the Vienna Trumpet Choir: Two Preludes from Das Musikalische Lustgärtlein (Frank); Suite from the Banchetto musicale (Schein); Divertimento in C for Two Flutes, Five Trumpets and Two Kettle-Drums (Mozart): Tattoo from the Seven Years War. **11.0,** Talk: Austrian Inventors. **11.30,** Concert by the Vienna Philharmonic Orchestra, conducted by Clemens Krauss; First Symphony in C, Op. 21 (Beethoven); Symphony No. 3 in F, Op. 90 (Brahms); Prelude and Isolda's Death, from Tristan and Isolda (Wagner). **12.50 p.m.,** Johann Strauss Concert, by the Vienna Symphony Orchestra, conducted by Josef Holzer; Overture, Der Waldmeister; Waltz: Bei uns z'Haus; Musical Joke: Perpetuum mobile; Overture: Carneval in Rom; Waltz, from Wiener Blut; Polka; I-Tiferl; Waltz: Frühlingsstimmen; Overture: Simplicius; Waltz: Wine, Woman and Song; Mazurka: Glücklich ist, wer vergisst; Prelude to Act III of Aschenbrödel; Johann Strauss Operetta Potpourri (arr. Ludwig Schlögl); Waltz: The Blue Danube. **2.35,** Time, Programme and Miscellaneous Announcements. **2.40,** Concert by the Mairecker Quartet: String Quintet in C, Op. 111 (Brahms); String Quintet in C, Op. 29 (Beethoven). **3.50,** Blessing of Sail Planes, by the Cardinal Archbishop Dr. Theodor Innitzer, relayed from the Reichsbundsportplatz, Neu-Waldegg. **4.50,** Choral Recital. **5.20,** Lehar Concert, by the Josef Holzer Orchestra. Soloist: Josef Holzer (Pianoforte); Pianoforte Solo: Overture, Wiener Frauen; Hungarian Fantasia; Waltz from The Count of Luxembourg; Song: I bin a Weaner Kind from Der Rastelbinder; Russian Dances, from Tatjana; Selection from Eva; Waltz from the Merry Widow; Overture, The Land of Smiles; Selection from Der Göttergatte; Waltz: Pikanterian; Ein Rendezvous bei Lehar (Bruhy). **7.25,** Time, Sports Notes and Programme Announcement. **7.35,** Concert by the Vienna Symphony Orchestra, conducted by Oswald Kabasta. Soloist: Franz Völker (Tenor) and Franz Schmidt (Pianoforte); Divertiment in D (Mozart); Airs (Wagner): (a) Siegmund's Love Song, from The Valkyries, (b) Grail Recital, from Lohengrin, (c) Prelude to Act II of Tannhäuser; (d) Aria from Tannhäuser; Blütenwunder und Trauermarsch, from Die Rose vom Liebesgarten (Pfitzner); Death of Othello, from Othello (Verdi); Concerto in C, Op. 11, for Pianoforte and Orchestra (Weber); Symphonic Poem: Till Eulenspiegel's Merry Pranks, Op. 28 (R. Strauss). **9.30,** News and Announcements. **9.40,** Act III of The Twilight of the Gods—Opera (Wagner), relayed from the State Opera House. **11.0,** Announcements.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Light Music on Gramophone Records. **1.20,** Weather Forecast. **1.25 to 3.10,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Answers to Correspondence. **3.35,** Answers to Technical Correspondence. **3.50,** Popular Music on Gramophone Records. **4.25,** Elementary French Lesson. **4.40,** Talk: Commercial Treaties. **5.0,** Pianoforte Recital by Mme. Meyer: Two Preludes and Fugues (Bach); Movement from a Sonata (Beethoven); Four Pieces (Debussy): (a) Soirée à Grenade, (b) Poissons d'or, (c) Serenade interrompue, (d) L'Isle joyeuse. **5.55,** Programme Announcements. **6.0,** Educational Talk. **6.20,** News. **6.25,** Light Music, relayed from the Cristal Restaurant. **7.0,** Miscellaneous Items. **7.20,** Agricultural Correspondence. **7.30,** Topical Talk. **7.45,** Radio Journal. **8.0,** The Chocolate Soldier—Operetta in Three Acts (Oscar Straus). In the interval, Sports Notes and Radio Journal. **9.45,** Answers to Technical Correspondence. **10.0,** Dance Music. **10.55,** Weather Forecast and Police Notes. **11.0,** Dance Music, relayed from the Café Adria..

WILNO

533 kc/s, 563 metres; 16 kW.—**6.0 p.m.,** See **Warsaw. 6.20,** Announcements. **6.25,** Talk. **6.40,** Talk in Lithuanian: The Rebellion of 1863. **6.55,** Miscellaneous Announcements. **7.0,** Reading. **7.10,** Miscellaneous Announcements. **7.15,** Sports Notes. **7.30,** See **Warsaw. 12 Midnight,** Close Down.

ZAGREB

977 kc/s, 307 metres; 0.75 kW.—**6.55 p.m.,** Review of New Books. **7.10,** Medical Talk. **7.30,** Theatre Review. **7.50,** Talk on the following Transmission. **8.0,** See **Belgrade.** In the intervals, News and Weather. **11.0** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

TUESDAY

MAY THE SECOND

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL Orchestral concert.

LONDON REGIONAL "Das Rheingold" (Wagner), from Covent Garden.

MIDLAND REGIONAL Orchestral programme, the music of Haydn Wood.

NORTH REGIONAL Variety programme.

WEST REGIONAL Gipsy Girls' Band from Bristol's "Ideal Homes" Exhibition.

SCOTTISH REGIONAL Band concert.

BELFAST Orchestral concert, the music of Massenet.

ABROAD

BERLIN (Deutschlandsender) "Rothschild Wins the Battle of Waterloo," a radio play by E. W. Möller (relayed by other German stations).

BRUSSELS (No. 1) 8 p.m. Wagner concert by the Radio Orchestra.

BRUSSELS (No. 2) 8 p.m. The Symphony Orchestra, conducted by A. Meulemans.

BUDAPEST 7.30 p.m. Opera: "Othello" (Verdi), from the Royal Hungarian Opera House.

PALERMO 8.45 p.m. Opera: "L'Elisir d'Amore," by Donizetti.

POSTE PARISIEN 8.30 p.m. Gustav Charpentier concert.

PRAGUE 7.30 p.m. Opera: "The Cunning Peasant" (Dvorak), from the National Theatre.

SOTTENS 8 p.m. Old chamber music from Lausanne.

STRASBOURG 6.30 p.m. Wind instrument and vocal concert.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Gramophone Concert. **6.0,** Programme for Children. **6.40,** News and British Market Report. **7.0,** Gaelic Talk. **7.15,** Talk on Dublin Statues. **7.30,** Music by the Station Orchestra. **8.0,** Baritone Recital by Robert Irwin. **8.10,** Pianoforte Solos by Mary Braid. **8.25,** Baritone Recital (contd.). **9.0,** Meadow Sweet—One-Act Comedy (Seamus O'Kelly), presented by H. Maguire and Co. **9.30,** Music by the Station Orchestra. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

(EAJ1), 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Records. **8.30,** Exchange Quotations and Talk on Art. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes from the Cathedral, Weather Forecast, Messages to Seamen, Exchange Quotations and Market Prices. **10.5,** Sponsored Programme. **10.30,** Two One-Act Musical Plays: (a) La Chicharra (Vela and Bru), (b) La Alegria de la Huerta (Chueca and Valverde). **12 Midnight** (in an interval), News. **1.0 a.m. (Wednesday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Notes, Tourist Talk and Dopolavoro Announcements. **8.20,** Giornale Radio. **8.25,** News. **8.30,** Time Signal and Announcements. **8.35** (approx.). Il dono del mattino—Comedy in Three Acts (Gioacchino Forzano). In the intervals and after the Comedy, Light Music on Gramophone Records. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.5 kW.—**6.25 p.m.,** Time Signal and Programme Announcements. **6.30,** Œdipus Rex (Stravinsky), by the Oblic Male Voice Choir, the Belgrade Philharmonic Orchestra, and Members of the Belgrade Opera House. **7.30,** Popular Music on Gramophone Records. **8.0,** See **Zagreb. 10.0,** News Bulletin, followed by Popular Concert, relayed from the Ratnicki Dom Restaurant

BERLIN

DEUTSCHLANDSENDER, 183.5 kc s, 1,635 metres; 60 kW.—**2.0 p.m.,** Concert from **Berlin (Witzleben). 3.0,** Programme for Young People. **3.30,** Weather and Exchange. **3.45,** Reading (Hansjürgen Wille). **4.0,** Talks for Women. **4.30,** See **Leipzig. 5.10,** Topical Talk. **5.30,** Sonata in F Minor, Op. 5, for Pianoforte (Brahms). **6.0,** Poetry Reading. **6.5,** Dialogue: Why always Politics? **6.30,** Flute Recital: Sonata in E (Joh. C. Bach); Four Pieces from the Suite, Op. 160 (Gustav Lazarus). **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations: Rothschild wins the Battle of Waterloo—a Radio Play (Eberhard Wolfgang Möller). **8.0,** See **Hamburg. 9.0,** Dance Music from **Heilsberg. 10.0,** Weather Report for Shipping. **11.0,** Concert from **Hamburg. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**6.0 p.m.,** Violin Recital by Eugen Moris: Chaconne in G Minor (Vitali); Lullaby, Polo and Jota (Falla). **6.20,** Book Review. **6.45,** Topical Talk. **7.0,** Transmission for all German Stations relayed from **Berlin (Deutschlandsender). 8.5,** Orchestral Concert, relayed from The Traube Restaurant. **9.0,** Johanna Brahms—Literary Programme (Walter Berten). **10.0,** Weather, News and Sports Notes. **10.30,** See **Hamburg. 12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**6.15 p.m.,** Radio Journal, relayed from **Paris (Ecole Supérieure), 671 kc/s, 447.1 metres. 7.30,** News and Market Prices. **7.40,** Programme for Women. **7.55,** Lottery Results. **8.0,** Talk: Pine Trees. **8.15,** News. **8.30,** See **Paris (Eiffel Tower).**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**5.35 p.m.,** Pianoforte Recital by Hona Knochtsberger-Snidzarová. **6.5,** See **Prague. 6.25,** Violin Recital by J. Simon. **6.55,** News. **7.0,** See **Prague. 10.15,** Light Music on Gramophone Records. **11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—1.10 p.m.,** Gramophone Concert: Overture, Poet and Peasant (Suppé). Waltz Potpourri; Air from The Merry Wives of Windsor (Nicolai); Waltzes (Chopin); Ach wie ist's möglich dann?; Muss i denn, muss i denn zum Städtle hinaus; Marching Song from the Sound Film "Rebelle" (Becce). **1.45,** Time, Weather, News, Exchange, and Shipping Report. **2.5,** Gramophone Concert. **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Programme for Children. **4.10,** Brahms Song Recital by Elsa Dankewitz-Pfeiffer (Contralto); Von ewiger Liebe; Nicht mehr zu Dir zu gehen; Salome; Wehe so willst du mich wieder; Die Mainacht; Therese; Alte Liebe; Ständchen. **4.40,** Reading (Hans Köbelhans reads from his own Works. **5.0,** Orchestral Concert, conducted by Bruno Janz. Overture, Così fan tutte (Mozart); Selection from Le Bourgeois Gentilhomme (R. Strauss-Tavan); Wanderer—Suite (Kaufmann); Air from Das Blumenwunder (Künnecke); Potpourri, Dividenden (Morena); Old German Gavotte (Lüling); In der blauen Grotte, from Napoli (Gade); Spanish March (Gyldmark). In an interval at **5.30** (approx.), Agricultural Prices. **6.0,** Talk: Traces of the Piasts in Silesia. **6.25,** Programme to be announced. **6.50,** Weather for Farmers, News, and Meat Market Prices. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** See **Hamburg. 9.0,** Dance Music from **Heilsberg. 10.0,** Time, Weather, News, Sports Notes, Colonial Market Report, and Programme Announcements. **10.25,** Political Press Review. **11.5,** Serenade by the Radio Orchestra, conducted by Franz Marszalek. **12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**6.15,** Talk for Workers—May the First. **6.25,** German Transmission: News and Two Talks. **7.0,** See **Prague. 10.15,** Light Music on Gramophone Records. **11.0** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R.; 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Concert by the Small Station Orchestra, conducted by Leemans: Finale from the Petite Suite (Bizet); Tarantella (Caludi); La Toupie (Gillet); Feu d'Artifice (Demaele); Gigue (German). **12.15 p.m.,** Granados Concert: Prelude; Allegro for Pianoforte; Spanish Dance. **12.30,** Music of the Forest: Suite, In the Forest (Popper); April in the Woods (Grieg); Dans la Douceur des Pins (Jongen); Bruissement sous Bois (Razigade). **1.0,** Le Journal Parlé. **1.10,** Lacôme Concert on Gramophone Records; Mascarade; Les Taureaux, from La Feria. **1.25,** Pianoforte Recital: Prelude and Fugue, No. 7 (Bach); Etude, No. 4 (Chopin); Fantasia Impromptu, No. 66 (Chopin). **1.45,** Slav Dances, Nos. 1, 2, 3, and 4 (Dvorak). **5.0,** Concert by the Symphony Orchestra, conducted by Meulemans: Overture, 1812 (Tchaikovsky); Dances from Prince Igor (Barodin). **5.30,** Programme for Children. **6.5,** Literary Review. **6.15,** Liszt and Debussy Pianoforte Recital, by André Dumartier (Pianoforte) and Joseph Caniean (Cello), with Commentary; Pianoforte Solos: Six Songs of Chopin (arr. Liszt); Pianoforte and 'Cello Duet, Liebestraum (Liszt); Spanish Rhapsody (Liszt); Sonata for 'Cello and Pianoforte (Debussy). **7.15,** Weekly Review and Film Notes. **7.30,** Review for Women. **8.0,** Wagner Concert by the Radio Orchestra, conducted by Franz André: March from Tannhäuser; O, Star of Eve; Love Song, from The Valkyries; Walter's Prize Song, from The Mastersingers; Wedding March. **8.45,** Talk. **9.0,** Concert by the Symphony Orchestra, conducted by Meulemans. Soloist, Mme. Graindorge (Pianoforte). Norwegian Rhapsody (Svendsen); Concerto for Pianoforte and Orchestra (Grieg); Melody from The Maid of Orleans (Södermann). **10.0,** Le Journal Parlé. **10.10,** Request Gramophone Records: Selection from La Mascotte (Audran); Fantasia on The Song of Songs (Moya); Selection from Aïda (Verdi). **10.40,** Symphony of Psalms for Choirs and Orchestra (Stravinsky). **10.55,** Christus Vincit (Liszt).

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**12 Noon,** Gramophone Concert. **1.0 p.m.,** Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans; Soloist: M. Wigy (Violin). **5.0,** Concert by the Radio Orchestra, conducted by Franz André; Overture, Zampa (Hérold); Stolz Potpourri (Dostal); Ballet Music from William Tell (Rossini); Selection from Véronique (Messager); Ballet Music from Coppélia (Delibes); Hungarian Dances (Brahms). **5.45,** Programme for Children. **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans; Soloist: M. Douliez (Pianoforte): Overture, Rosamunde (Schubert); Suite from Callirhoe (Chaminade); Dance of the Dolls (Turina); Potpourri, From Gluck to Wagner (Schreiner); Pianoforte Solo: Valse caprice (Newland); March of the Dwarfs (Grieg); **7.15,** Talk. **7.30,** Journal Parlé. **8.0,** Concert by the Symphony Orchestra, conducted by A. Meulemans; Soloist: Mlle. Legrain (Songs): Spanish Caprice (Rimsky-Korsakov); Dances from The Bartered Bride (Smetana); Songs (Baeyens): (a) Avondbloemen, (b) De Zang van het doode hout; Hungarian March (Berlioz). **8.45,** Talk: The World's Workers. **9.0,** Concert by the Radio Orchestra, conducted by Franz André: Military March (Schubert); Overture, Piccolino (Guirand); Selection from La Vie Parisienne (Offenbach); Selection from Show Boat (Kern); Selection from Les Cloches de Corneville (Planquette); Russian Dances (Tchaikovsky); Selection from Là-haut (Yvain); When the Guards are on Parade (Sarony). **10.0,** Journal Parlé. **10.10,** Old and Modern Dance Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Light Music and Rumanian Music by the Motoi Orchestra. In the interval at **6.0,** Radio Journal. **7.0,** Talks. **7.40,** Gramophone Concert of Light Music. **7.55,** Time Signal. **8.0,** Song Recital by Madame H. Steinbach. **8.20,** Concert of Light Music: Overture, Der Freischutz (Weber); Suite (Suk); Prelude to Werther (Massenet); Selection from The Flower of Hawaii (Abraham); Potpourri of Old Viennese Songs (Muss); Waltz, (Valciky (Smetana). **9.0,** Talk. **9.15,** Concert (contd.); Symphonic Poem, Danse macabre (Saint-Saëns); Blues (D'Albert); Adagio from the Concerto in G for Violin (Bruch); March (Kricka). **9.45,** Radio Journal. **10.0,** Talk; Romanian Poetry.

BUDAPEST

545 kc/s, 550 metres; 18.5 kW. Also relayed on **840 metres** from **7.25 p.m. to 12 Midnight. 4 p.m.,** Talk. **5.0,** Concert by the Gyula Horvath Cigany Band. **5.50,** French Lesson. **6.15,** Pianoforte Quintet Concert. **7.30,** Othello—Opera in Four Acts (Verdi), relayed from the Royal Hungarian Opera House. In the interval, News. After the Programme, Weather and Popular Music on Gramophone Records. **11.0,** Talk on the Budapest International Fair. **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW. **—12 Noon,** Time and Chimes from the Town Hall. **12.2 p.m.,** Concert by the Harald Andersen String Ensemble, relayed from the Bellevue Strandhotel. **2.0 to 3.0,** Interval. **3.0,** Concert by the Station Orchestra, conducted by Emil Reesen; Soloist: Christian Stage (Songs). **5.0,** Programme for Children. **5.40,** Exchange and Fish Market Prices. **5.50,** Talk on John Bunyan. **6.20,** German Lesson. **6.50,** Weather. **7.0,** News. **7.15,** Time Signal. **7.30,** Talk. **8.0,** Time Signal and Chimes from the Town Hall. **8.2,** Concert of Dance Music by the Radio Orchestra, conducted by Lanny Grondahl. **8.45,** Nye Signaler—Radio Sketch (Bomholt and Norgaard). **10.0,** Pianoforte Solos by Viktor Fischer: Das Wetterhäuschen (Krome); Melancholy Charlie (Crum); Blue Bell (Myers). **10.15,** News. **10.30,** Quintet in C, Op. 5, for Two Violins, Two Violas and 'Cello (Svendsen). **11.0,** Programme for Child Welfare Day, arranged by the Frederiksborg Child Welfare Committee.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**12 Noon,** Military Band Concert. **12.30 p.m.,** News. **12.45,** Vocal Concert. **5.30 to 7.0,** Programme in English by the I.B.C. Announcers: C. Danvers-Walker and B. McNabb. **5.30,** Concert by a Tango Band for Torquay and Exter Listeners. Todavia; Adios Juventud; Corazon; Violin Solo: Fandango; Mañan yo quiero un novio; Madrid; Violin Solo: Capriee Basque; Tesoro Mio; Songs: (a) Tu sais, (b) Déjà; Plegaria; La Paloma. **6.15,** Concert for Plymouth and Devonport Listeners. Me and the Man in the Moon (Monaco): I bring a Love Song; Ah, Sweet Mystery of Life; Sextet; Kashmiri Song (Woodforde-Finden); Duet; Goodnight, Sweetheart (Noble); Sextet; Someday I'll find you; Sextet; Le cygne (Saint-Saëns); You will remember Vienna; You are my Heart's Delight (Lehár); Duet; Leave the Pretty Girls alone (Robinson); Sextet: Serenade; Russian Rhapsody (Nussbamm). **7.0,** Radio Gazette. **7.20,** News. **7.30,** The Listeners' Half Hour and News. **8.15,** Talk. **8.30,** Concert, relayed from **Le Havre. 10.0** till Close Down. Programme in English by the I.B.C. **10.0,** Dance Music by the Ibeolians. Them There Eyes; There's something about an old-fashioned Girl; Swingin' in a Hammock; Okay, Baby; Beware of Love; O Donna Clara; What a Perfect Night for Love; My Future just passed; Moonlight on the Colorado; Sous les toits de Paris; You are the Melody; Harmonica Harry; A Little Love Song; Soldier on the Shelf; The Kiss Waltz. **11.0,** Octet Concert. Hungarian Dance in D (Brahms); Spring Song (Mendelssohn); Hungarian Dance in A Minor (Brahms); Ave Maria (Schubert); Toreador et Andalouse (Rubinstein); Valse Bluette (Drigo); Romance (Rubinstein); Narcissus (Nevin). **11.30,** Songs and Orchestral Music. Will you dance through life with me? (Swabach); Duets: (a) When everyone else has passed you by (Wheldon), (b) Bella, the Bold Bad Bandit (Wheldon); Song: How deep is the Ocean; African Lament (Gilbert); Songs: (a) In a Cloister Garden (Morgan), (b) Street of Dreams (Young); There was a Poor Musician (Schwartz). **12 Midnight,** Club Concert for Scarborough Listeners. Love's Dream after the Ball (Czibulka); Deep Blue Sea (Brewer); Only for you (Weinberg); Selection from H.M.S. Pinafore (Sullivan); My Song of the Nile (Meyer); Since you went away (Johnson); Scherzo, Sylvia (La Thiere); Mammy is gone (Henderson); Lonesome Moonlight

(Strickland); Black Eyes (Ferraris); Just keepin' on (Carter); A Banjo Song (Homer); Barcarolle from The Tales of Hoffmann (Offenbach). **1.0 a.m. (Wednesday),** Hawaiian Band Concert. Alma Mia (Whidden); Bona Festa (Traditional); Good-Night, Sweetheart (Nobel); Steel Guitar Solo: Dear old Pal of Mine (Robe); Hawaiian Twilight (Traditional); Sing something simple (Hupfield); La Javanette (Bozi); O Sole Mio (di Capua). **1.30,** Songs and Orchestral Music. Songs: (a) A little Kiss each morning (Woods), (b) The Night was made for love (Kern), (c) I am the Words (de Sylva); Selection from White Horse Inn (Stolz-Benatzky); Songs: (a) Now I'm in love (Yellen), (b) A New Love is Old (Harbach), (c) Little White Lies (Donaldson). **2.0,** Dance Music by the Ibcolians: My Romance; On a Dreaming Afternoon; Puleeze Mr. Hemmingway; Moonlight on the River; Till to-morrow; Pal of my Dreams; Let's all dance the Polka; Sweethearts forever; Marching along together; Three's a Crowd; Ooh! that Kiss; I guess I'll have to change my Plan; How deep is the Ocean; I'm forgetting myself; I wonder how the Old Folks are to-night. **2.57,** I.B.C. Good-night Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—**6.0 p.m.,** Talk: The Human Intellect. **6.15,** A German Almanac. **6.25,** English Lesson. **6.50,** Time, Programme Announcements, Weather and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Concert by the Station Orchestra, conducted by Reinhold Merten. Selection from Boccaccio (Suppé); Melodies from The Bayadere (Kálmán); Aria from The Land of Smiles (Lehár); Selection from Liselott (Künneke). **9.15 to 12 Midnight,** See **Stuttgart. 10.30,** Time, News, Weather and Sports Notes. **12 Midnight** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—**5.30 p.m.,** Talk on Australia and the South Seas: The Country and People of New Zealand. **5.55** (from **Bremen**), Brahms Chamber Music, by the Mixed Double Quartet of the Bremen Cathedral Choir and Soloists: Käte van Tricht (Pianoforte) and Richard Liesche (Pianoforte). Liebeslieder-Walzer, Op. 52, Number 1, for Pianoforte (four hands) and four solo voices; An die Heimat, Op. 64, Number 1, Vocal Quartet with Pianoforte Accompaniment; Hungarian Dances: (a) No. 1 in G Minor, (b) No. 3 in F, (c) No. 7 in A, (d) No. 6 in D flat; Zigeunerlieder for Vocal Quartet and Pianoforte. **6.45,** Frankfurt Exchange and Hamburg Market Prices. **6.50,** Weather Forecast. **7.0,** Transmission for all German Stations relayed from **Berlin (Deutschlandsender). 8.0** (from **Kiel**), Wind Instrument Concert, conducted by Ludwig Hacker: March, Einzug schneidiger Truppen (Blankenburg); Jubel-Ouvertüre (Bach); Waltzer, Dorfschalben aus Oesterreich (Jos. Strauss); Selection from Der Bettelstudent (Millöcker); Army March No. 194 (Laudenbach); Czardas from Der Geist des Wojewoden (Grossmann); Descriptive piece, Elfen und Gnomen (Schwittmann); Soldatenlieder (Hanneman). **9.0,** News. **9.10,** The German Soldier: Literary and Musical Programme. **10.10,** Time, Weather, Announcements, Sports Notes, and Police Report. **10.20,** Topical Talk. **10.30,** Concert by the Station Choir and Orchestra, conducted by José Eibenschutz. Soloists: Karl Grotsch (Violin), H. E. Groh (Tenor) and B. Jakschtat (Baritone). Overture to Richard III (Volkmann); Andante and Rondo from the Violin Concerto in E flat (Mozart); Old German War Songs; Selection from Aida (Verdi); Waltz, O schöner Mai (Joh. Strauss); Selection from Der Obersteiger (Zeller).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.**—**1.5 to 2.30 p.m.,** Gramophone Concert. Overture, Der Schauspieldirektor (Mozart); Aria from The Magic Flute (Mozart); Ballet Music from Idomeneo (Mozart); Song from Czar and Carpenter (Lortzing); Czardas from Ritter Pasman (Joh. Strauss); Selection from The Bohemian Girl (Balfe); Andante cantabile from the String Quartet in D, Op. 11 (Tchaikovsky); Faust Waltz (Gounod-Sarasate). Violin Solo: Concerto romantique (Godard); Bacchanale from Samson and Delilah (Saint-Saëns). In the interval at **1.20,** News. **2.30,** Programme arranged by the Post Office, with Gramophone Records. **3.0,** Market prices. **3.30** (from **Danzig**), The Three Wishes—A Fairy Play (Count Pocci). **4.0,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken; Overture, Der Wildschütz (Lortzing); Zigeunerlust (Heykens); Liebesszene (Lubbe); Selection from La Traviata (Verdi); Waltz, Perlen der Liebe (Jos. Strauss); Suite, La Source (Delibes); Vision (Schmaistich); Austria (R. Strauss); Overture, Der Göttergatte (Lehár); Feuer und Flamme (Männecke). **5.45,** Review of Books. **6.15,** Agricultural Market Prices. **6.25,** Talk: The Young People's Handicraft Movement. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.5,** Dance Music by the Small Station Orchestra, conducted by Eugen Wicken, and the Glatzel Band. **9.45,** Talk: Seven Hundred Years of Marienweder. **10.15,** Weather, News and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7kW. up to **5.40 p.m.**).—Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.10 a.m.,** Concert by the Hendriks Orchestra. In an interval at **11.40,** Cookery Talk. **12.55,** Popular Music on Gramophone Records. **1.10** p.m., Concert by the Radio Orchestra, conducted by Nico Treep: Los Banderillos (Volpatti); Overture to a Spanish Comedy (Keler-Bela); Second Petite Suite (de Micheli); Salut d'amour (Elgar); Down South (Myddelton); Gramophone Records; Selection from La Bohème (Leoncavallo); Moonlight by the Bosphorus (Köpping); The Clock and the Dresden Figures (Ketelbey); Ballet Scene (Luigini); Entr'acte (Gillet); Melody (Holzmann). **2.40,** Interval. **2.55,** Concert by the Radio Orchestra, conducted by Nico Treep: Waltz, Weaner Mad'ln (Ziehrer); Czardas from Der Geist des Wojewoden (Grossman); Ständchen (Heykens); Capriccio (Bayer); Dance of the Marionettes (Gillet); Bizet Potpourri (Urbach). **3.40,** Dressmaking Lesson. **4.40,** Russian Song Recital by Marta Harlasova-Schrödlove. **5.10,** Concert by a Children's Choir, conducted by Jacob Hamel. **5.40,** Programme for Children. **6.10,** Talk arranged by the Liberal Protestant Radio Society (V.P.R.O.). **6.40,** Popular Music on Gramophone Records. **7.40,** Talk on Cattle. **8.5,** Interval. **8.10,** Concert by the Kovacs Lajos Orchestra: Soloist, Bob Scholte (Songs). **9.40,** Recitations. **10.0,** Ein deutsches Requiem (Brahms), by the Concertgebouw Orchestra, Choir, and Soloists, relayed from the Concertgebouw, **Amsterdam.** Conductor: Dr. Willem Mengelberg. **11.10,** Popular Music on Gramophone Records. **11.40,** News. **11.50,** Concert of Light Music by Crazy Tom and his Orchestra, relayed from the Carlton Hotel, **Amsterdam. 12.40 a.m. (Wednesday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**12.55 p.m.** till Close Down. Programme of the Catholic Radio Society (K.R.O.). **12.55,** Concert by the K.R.O. Orchestra, conducted by J. Gerritsen: March, Wilhelmina (Wesly); Overture, Alessandro Stradella (Flotow); Moment musical (Schubert); Selection from Lilac Time (Schubert-Berté); Waltz, Dorfschwalben aus Oesterreich (Jos. Strauss); Schweizer Schützengilde (Zimmer); Gramophone Records; Overture, The Golden Cross (Brüll); Two Hungarian Dances (Brahms); Grieg Potpourri (Urbach); The Cockney Lover (Ketelbey); Unter dem Doppel-Adler (Wagner). **2.25,** Interval. **2.40,** Programme for Women. **3.40,** Light Music on Gramophone Records. **4.10,** Recitations. **4.30,** Song Recital by J. Lammen (Bass): Come raggio di sol (Caldara); An die Musik (Schubert); Der Doppelgänger (Schubert); Nachtgang (Strauss); Song from The Magic Flute (Mozart); Air from Belshazzar (Händel); Ideale (Tosti); In questa tomba oscura (Beethoven); Selection from L'enfant du Christ (Berlioz); Agnus Dei (Bizet); In an interval at **4.50,** Recitations. **5.30,** Popular Music on Gramophone Records. **5.55,** Concert by the K.R.O. Boys, conducted by P. Lustenhouwer. Soloist: J. Mossel (Songs). In the intervals at **6.40,** Talk, and at **7.20,** Esperanto Lesson. **7.50,** Medical Talk. **8.10,** Police Report. **8.25,** Talk. **8.40,** Light Music on Gramophone Records. **8.55,** Concert by the Haarlem Orchestral Society, conducted by F. Schuuman. Soloist: Hans Grüys (Songs). Brandenburg Concerto No. 3 in G (Bach); Symphony No. 39 in E Sharp (Mozart); Les Prières (Caplet); Suite of Russian National Songs (Liadov); Five Spanish National Songs (arr. Schuurman); Overture, Le Carnaval romain (Berlioz). In an interval, **News. 11.15,** Concert by a Balalaika Ensemble, conducted by Ivan Schustov. **12.40 a.m. (Wednesday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide. News, Financial Notes, and Racing Results. **8.10,** Agricultural Talk. **8.20,** Programme arranged by the Association des Amis de Radio Côte d'Azur. **8.35,** Radio Concert. **9.0,** Weather Report and News Bulletin. **9.15,** Concert by the Estudiantina Mandoline Orchestra of Nice. **9.45,** Dance Music, relayed from the Palais de la Méditerranée. **12 Midnight to 1.0 a.m. (Wednesday),** Programme in English by the I.B.C. **12 Midnight,** Concert of Light Music: Serenade for Pianoforte and Celeste (Heykens); Songs: (a) All of me (Marks), (b) You try somebody else (Henderson); Pianoforte: Tuneful Melodies; Songs: (a) The Song of Songs (Moya), (b) Trees (Rasbach); The Fairies' Gavotte, for Pianoforte and Celeste (Kahn). **12.30 a.m. (Wednesday),** Dance Music: Open up dem pearly gates; Tap your feet; In the jailhouse now; The Minor Drag; I'm so in love with you; Harlem Fuss; Shout 'em, Aunt Tillie; Betty Co-ed. **12.57,** I.B.C. Good-night Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by **Helsinki, 815 kc/s, 368.1 metres.**—**6.15 p.m.,** Talk. **6.40,** Pianoforte Recital by Iris Niinivaara: Prelude in D Minor (Chopin); Ballad in G Minor (Chopin); Wiener Tanz (Friedman-Gärtner); Mazeppa (Liszt). **7.5,** Recitations. **7.30,** Concert by the Station Orchestra, conducted by Erkki Linko: Soloist: Edvin Bäckman (Songs); Overture, Benvenuto Cellini (Berlioz); Andante from the Clock Symphony (Haydn); Melody from Carmen (Bizet); Two Arias from Tannhäuser (Wagner); Wedding March, Homage to Handel (Klami). **8.45,** News in Finnish. **9.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0 p.m.,** Concert conducted by Wolf: March, Aller Ehren ist Oesterreich voll (Nowotny); Waltz, Morgenblätter (Strauss); Overture, Rübezahl (Flotow); Fantasia, Gounodiana (Rhode); Two Viennese Dances (Friedmann-Gärtner); A Wedding Day on Troldhaugen (Grieg); Selection from The Blue Mazurka (Lehár). In the interval at **2.0,** News. **2.30 to 2.45,** Sponsored Programme, with Gramophone Records. **3.0,** Programme for Children. **3.30,** Exchange, and Time Signal. **3.50,** Talk: The Teaching of Mathematics. **4.20,** Notes on the Broadcasts for Schools. **4.30,** Vocal and Instrumental Concert. **5.50,** Talk: The Heavens in May. **6.5,** Talk: Reminiscences of Gustav Freytag. **6.25,** Italian Lesson. **6.50,** Weather, Time, Exchange, and Sports Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** First General News. **8.5,** Liebe—Leicht komisch (Light of Love)—a Whimsical Play, with Song and Verse (Alfred Erich Sislig). **10.0,** News, Sports Notes, and Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**1.15 p.m.,** Gramophone Concert of Classical Music: Two Pieces (Rameau): (a) Le Timide, (b) Tambourin; Two Pieces (Bach): (a) Sarabande, (b) Air; Allegro non troppo from the Quintet, Op. 81 (George Onslow); Adagio from the String Quartet in G, Op. 76, No1 (Haydn); Two Pieces (Mozart): (a) Fantasia in D Minor, (b) Adagio in E; Sonata, Op. 27, No. 2—the Moonlight (Beethoven). **2.0 to 2.10,** Exchange Quotations. **3.35,** Market Prices. **4.0,** Readings: Brahms or Wagner? **4.30,** Concert by the Station Orchestra, conducted by Theodor Blümer; Soloist: Fritz Schertel ('Cello): Overture, Des Teufels Lustschloss (Schubert); Concerto for 'Cello and Orchestra, Op. 33 (Robert Volkmann); Hungarian Dances Nos. 5 and 6 (Brahms); Four Old Dances (Walter Niemann); Schlummerlied, Op. 20, No. 4 (Franz Ries); Perpetuum mobile (Joh. Strauss). **5.30,** Weather and Time. **5.50,** Exchange Quotations. **6.0,** Talk for Women: The Vocation and Destiny of the German Woman Abroad. **6.25,** Talk on the Baroque Period. **6.45,** Talk on Erich Bethe on his Seventieth Birthday. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Topical Talk. **8.10,** Wind Instrument Concert, conducted by Max Mehring: March, Die eiserne Zeit (Max Mehring); Festival Overture (Fischer); Spanish Rhapsody (Richardy); Der Blumen Pracht (Oscar Klose); Two Turkish Marches (arranged Max Mehring); Waltz, Roses from the South (Joh. Strauss); Alte deutsche Treue (Frantzen). **9.10,** Talk: Obedience or Determination of one's own Destiny? **9.45,** Pianoforte Concerto in C Minor (Hugo Kaun). **10.30,** News, followed by Orchestral Concert. **11.30** (approx.), Close Down.

LINZ.—See **Vienna.**

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Radio Journal and Request Gramophone Concert. **8.30** (in an interval), Talk for Sportsmen. **9.15,** News Bulletin and Political Review. **9.30 to 10.0,** Interval. **10.0,** Linguaphone English Lesson. **10.30,** Chimes, Time Signal, and Political Review, followed by The Twilight of the Gods—Opera (Wagner) on Gramophone Records. **12.45 a.m. (Wednesday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW. **4.10 p.m.,** Dvorák Concert by the Station Orchestra, conducted by J. Plichta. Overture, The Cunning Peasant; Symphonic Poem, The Water-sprite; Rhapsody in G Minor, Op. 45, No. 2; Two Waltzes, Op. 54, Nos. 1 and 4; Polka and Furiant from the Czech Suite, Op. 39. **5.10,** See **Prague. 5.50,** Talk: Norway, the Land of Fjords. **6.10,** Light Music on Gramophone Records. **6.15,** See **Prague. 6.25,** See **Brno. 7.0,** See **Prague. 10.15,** Light Music on Gramophone Records. **11.0** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nurnberg, 1,256 kc/s, 239 metres.**—**4.30 p.m.,** Orchestral Concert, conducted by Erich Klosz: Overture, Iphigenia in Aulis (Gluck); Larghetto from the Second Symphony (Beethoven); Prelude, and the the Death of Isolde from Tristan and Isolde (Wagner); Selection from Ariadne auf Naxos (R. Strauss); Petite Suite (Debussy); Spanish Dance from La vida breve (Falla); Catalan Caprice (Albeniz); Bohemian Dance (Smetana). **5.45,** Talk: Palatinate Legends. **6.5,** Time, Weather, and Agricultural Report. **6.20,** Goldberg Variations for Two Pianofortes (Bach, arr. Reger-Rheinberger). **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.5,** Springtime in the Palatinate—Choral and Orchestral Concert, with Talks relayed from St. Ingbert. **9.25,** Max von Schillings Concert by the Station Orchestra, conducted by H. Winter: Soloist: Willy Berber (Violin); Symphonic Prologue to King Oedipus; Concerto for Violin and Orchestra. **10.20,** Time, Weather, News, and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**5.0 p.m.,** Concert, relayed from the Continental Hotel. **6.0,** Programme for Housewives. **6.45,** Popular Music by M. Birger Nyhus (Pianoforte) and M. Rolf Engebretsen (Accordion). **7.0,** Announcements, Weather and News. **7.30,** English Lesson. **8.0,** Time Signal. **8.20,** Concert of Marches and Waltzes by the Station Orchestra, conducted by Hugo Kramm: March, Wien bleibt Wien (Schrammel); Waltz, Quand l'amour meurt (Cremieux); Finnish Cavalry March; Waltz from the Count of Luxembourg (Lehár); March from Die Folkunger (Kretschmer); Waltz (Lincke); Friendship March (Sousa); Sphinx Waltz (Hopy); Radio March (Laasby); Waltz (Melvold); March, Einzug der Hellebardieren (Blankenburg); Waltz, Morgenblätter (Joh. Strauss); Norwegian Military Marches (Olsen). **9.40,** Weather and News. **10.0,** Topical Talk. **10.15,** Quartet Concert of Popular Music. **10.45** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Report and Giornale Radio. **8.20,** Popular Music on Gramophone Records. in the interval at **8.30,** Time Signal and Announcements. **8.45,** L'Elisir d'amore—Opera in Three Acts (Donizetti). In the intervals, Talk and Miscellaneous Notes. After the Opera, News.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals). **6.45 p.m.,** Theatre Review. **7.0,** Le Journal Parlé.

MAY 2nd **TUESDAY** *continued*

8.20, Weather Report. 8.30, Donogoo—a Play (Jules Romains).

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—6.45 p.m., Journal Parlé. 7.0, Sponsored Concert. 8.0, Talk on the Cinema. 8.5, Legal Talk. 8.15, Interval. 8.30, Charpentier Concert by the Station Symphony Orchestra, conducted by the Composer. 10.30, News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Light Music on Gramophone Records. 8.0, Press Review and Weather. 12 Noon, Concert by the Krettly Orchestra. Part I—Opéra-Comique Music: Overture, The Nuremberg Doll (Adam); Selection from Jean de Nivelle (Delibes); Prayer from Joan of Arc (Gounod); Selection from Griséldis (Massenet); Prelude to L'Enfant roi (Bruneau); Selection from Cavalleria rusticana (Mascagni); 'Cello Solo: Overture, Le roi d'Ys (Lalo); Ballet Music from Parysatis (Saint-Saëns). Part II—Bizet Music: Flower Song and Habanera from Carmen; Overture, Patrie; Berceuse from Jeux d'enfants; Suite No. 2 from L'Arlésienne. Part III—Music from Other Lands: Ukrainian Suite (Rubinstein); Night in the Bay of Palma (Turina); March from Sigurd Jorsalfar (Grieg). In the intervals at 1.0, Exchange, News and Weather, and at 1.30, Exchange. 2.0, Exchange and Announcements. 3.45, Exchange and Market Prices. 4.30, Elementary English Lesson. 6.10, Agricultural Talk. 6.30, Advanced English Lesson. 6.50, Theatre Review. 7.5, Talk on Art. 7.20, Concert by the Krettly Orchestra: Eternelle ivresse (Gaune); Two Italian Songs (Volpatti); L'heureuse aubade (Filipucci); La ronde des lutins (Razigade); Third Suite on Popular Caucasian Airs (Léoni). 7.45, Review of the British Press. 8.0, Variety Programme arranged by Paul Weill. 8.30, News and Weather. 8.40, Review by Pierre Seize. 8.45, Madame Récamier and her Salon—Programme arranged by Gabrielle Reval. In the interval at 9.15, Press Review and News. 10.0, Gramophone Concert: Toccatina for Harpsichord (Scarlatti); Pastorale variée for Harpsichord (Mozart); Old Songs (arr. Weckerlin): (a) Maman, dites-moi, (b) Bergère légère, (c) O ma tendre musette: Quartet in F (Haydn).

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA); 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK on 48.86 metres and 25.27 metres.—7.30 p.m.,** Health Talk by Dr. Royal S. Copeland. 7.35, KDKA Home Forum. 8.0, Betty and Bob, from **New York.** 8.15, Programme to be Announced. 8.45, Congress of Clubs Period. 9.0, Teaberry Baseball Scores. 9.5, Business News. 9.15, Selma Brandt (Pianist). 9.30, Weather Report. 9.31, Market Reports. 9.45, Programme to be Announced. 9.57, David Lawrence Dispatch. 10.0, Teaberry Baseball Scores. 10.5, Programme to be Announced. 10.15, Dick Daring, from **New York.** 10.30, The Singing Lady, from **New York.** 10.45, Little Orphan Annie. 11.0, Booth Tarkington's Maude and Cousin Bill, from **New York.** 11.15, Time Signal. 11.16, Weather Report. 11.17, Teaberry Sport Review. 11.22, Press News Reeler. 11.29, Temperature Report. 11.30, Programme to be Announced. **11.45 to 3.15 a.m. (Wednesday), New York** Relay. 11.45, To-day's News, by Lowell Thomas. **12 Midnight,** Pepsodent Amos 'n' Andy. **12.15 a.m. (Wednesday),** National Advisory Council on Radio in Education: The World Court. 12.45, Southern Singers. 1.0, Eno Crime Clues. 1.30, Time Signal, and Adventures in Health. 1.45, Southern Singers. 2.0, Household Musical Memories. 2.30, Willard Robinson's Deep River Orchestra. 3.0, Dr. Curtis Howe Springer.

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.9 kW.—6.20 p.m., Literary Talk. 6.35, Topical Talk: 6.50, Miscellaneous Items and News. 7.10, Book Review. 7.28, Time Signal. 7.30, See **Warsaw.** 8.0, Concert from **Zagreb, 977 kc/s, 307 metres.** 9.15, Concert by a Male Voice Quartet. In the intervals, Theatre Guide, Programme Announcements and News. 9.45, Whistling Solos by Jules Lesci. 10.5, Song Recital. 10.30, Time, Sports Notes and Police Announcements. 10.45, Dance Music from the Café Esplanade. 11.50 (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—4.10 p.m., See **Moravská-Ostrava.** 5.10, Talk on Economics. 5.20, German Lesson for Czechs and Czech Lesson for Germans. 5.50, Light Music on Gramophone Records. 6.5, Agricultural Market Prices. 6.15, Talk for Workers. 6.25, News in German. 6.30, German Transmission: Strolls through Prague—Reading of German Poetry. 7.0, Chimes. 7.1, News Bulletin. 7.10, Talk: Flower Lovers. 7.25, Talk on the following Transmission. 7.30, The Cunning Peasant—Opera in Two Acts (Dvořák), for the Twenty-ninth Anniversary of the Composer's Death, relayed from the National Theatre. In the interval at 9.0, Time Signal. 9.40, Competition Report. 10.0, Time Signal. 10.1, News and Sports Notes. 10.15, Variety Music on Gramophone Records. 11.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.—6.30 p.m.** (from **Geneva**), Advanced English Lesson. 7.0 (from **Lausanne**), Weather and News. 7.20 from **Geneva**). Answers to Correspondence. 7.30 (from **Geneva**), Concert of Newly-released Gramophone Records. 8.0 (from **Lausanne**), Concert by the Freiburg Chamber Trio for Old Music, of Freiburg in Brisgau: De plus en plus (Binchois, 1460); Intrada Fuhrmann, 1600); Amate il ben mio (Marenzio, 1599); Corrente a tre (Marini, 1624); Pavane and Gaillard; Tanzlied (M. Franck, 1636); Invention (Bach); Quand je vais au jardin; Musette; Minuet (Telemann). 9.0 (from **Lausanne**), Cabaret Concert. 10.0, News and Weather. 10.10 (from **Geneva**), Talk: The Work of the League of Nations 10.30 (approx.), Close Down.

REYKJAVIK

250 kc/s, 1,200 metres; 24 kW.—9.30 p.m., Weather Report. 9.40, Musical Programme and Announcements. 10.0, Chimes and News Bulletin. 10.30, Talk. 11.0, 'Cello Recital. 11.15, Reading. 11.35, Brandenburg Concerto (Bach) on Gramophone Records.

RIGA

572 kc/s, 525 metres; 15 kW.—7.5 p.m., Concert of Rusian Music. Overture, Romeo and Juliet (Tchaikovsky); Concerto for Violin (Tchaikovsky); Symphonic Ballad, Le Voyevode (Tchaikovsky); Songs: (a) Aria from Prince Igor (Borodin), (b) Aria from Russlan and Ludmilla (M. Glinka), (c) Aria from Iolanthe (Tchaikovsky), (d) Aria The Czar's Bride (Rimsky-Korsakov); Spanish Caprice (Rimsky-Korsakov); Suite from The Golden Cockerel (Rimsky-Korsakov). In the interval at 8.0, News. 9.30, Dance Music. 10.30 (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.—1.0 to 2.15 p.m.,** Orchestral Concert. In the interval from 1.30 to 1.45, Giornale Radio and Exchange. 4.45, Children's Radio Review. 5.10, Announcements. 5.15, Exchange and Giornale Radio. 5.30 to 6.15, Orchestral Concert. Coplas de Granada (Mazzucchi); Znena (Di Lazzaro); Indian Song (Flemm); La ronda delle bambole (Fragna); Caprice (Savasta); Passatempi (Castelnuovo-Tedesco); Improvviso (Martucci); Who believes in Love? (Gross); Per te sarò tenente (Branenecci). 7.0 **(Naples),** Shipping and Sports Notes. 7.10, Lesson in Morse. 7.20, Giornale Radio, Agricultural and Dopolavoro Notes. 8.0, Time and Announcements. 8.2, Talk: The Heavens in May. 8.15, Gramophone Records of Light Music. 8.30, Sports Notes and Tourist Report. 8.45, Variety Concert. Soloists: Mario Corti (Violin) and Vecia Cattaneo (Soprano). Sonata for Violin and Pianoforte, Op. 100 (Brahms); Soprano Solos: (a) La pastorella (Castelnuovo-Tedesco), (b) La lavandaia di San Giovanni (Tomassini), (c) Ma pompée chérie (de Sévérac), (d) Seguidilla and Jota murciana (de Falla); Violin and Pianoforte Duets: (a) Canto (Pizzetti), (b) Trecati (Ferrari), (c) Canzonetta and Tamburin (Corti). 9.45, Comedy in One Act (Quintero Brothers). 10.15, Dance Music. 10.55, News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 379.5 metres; 50 kW. Relayed at intervals by **W2XAF on 31.48 metres** and by **W2XAD on 19.56 metres.—12.45 a.m. (Wednesday),** Stock Reports. 1.0 to 3.0, **New York** Relay. 1.0, Blackstone Plantation. 1.30, Wayne King's Orchestra. 2.0, Ben Bernie's Orchestra. 2.30, Ed Wynn and the Fire Chief Band. 3.0, Symphony Orchestra. 4.0, Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres,** and **Berne, 1,220 kc/s, 245.9 metres.—7.0 p.m.** (from **Berne**), Time, Weather and Notes on Broadcasts for Schools. 7.15 to 8.40 (from **Berne**), Programme to be announced. 8.40, See **Zagreb.** 9.15, Weather and News. 9.30 (from **Berne**), Programme to be announced. 10.15 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.—5.5 p.m.,** Programme for Children. 5.45, Health Talk. 6.0, Light Music on Gramophone Records. 6.55, Talk in German: Swedish Poetry in German. 7.15, Weather and News. 7.30, Talk, relayed from **Uppsala, 662 kc/s, 453.2 metres.** 8.0, Orchestral Concert: March, El Capitan (Sousa); Overture, Maritana (Wallace); The Nutcracker Suite (Tchaikovsky); Three Pieces (Björkander): (a) Prelude, (b) Caprice, (c) Humoresque; Intermezzo (Södermann); Selection from The Geisha (Jones). 9.15, Literary Review. 9.45, Weather and News. 10.0, Choral and Orchestral Concert. Conductor: J. Norrby. 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.30 a.m., Light Music on Gramophone Records. 12 **Noon,** Orchestral Concert, conducted by Maurice de Villers. 12.45 p.m., News Bulletin. 1.0, Time Signal. 1.1, Exchange Quotations. 1.5, Orchestral Concert (contd.). 2.0 to 4.45, Interval. 4.45, Talk on the French Colonies: Economic Changes in Algeria from 1830-1890. 5.0, Meyerbeer Concert (Died May 2nd, 1864); Conductor: M. Roskam: Selection from Robert le Diable; Selection from The Prophet; Selection from The Huguenots; Selection from L'Africaine. 6.0, History Talk: Kings and Queens in Exile in Paris in the Nineteenth Century. 6.15, Topical Talk in French. 6.30, Wind Instrument Concert, Soloist: Mlle. Annette Brincour (Songs); Quintet for Flute, Oboe, Clarinet, Horn, and Bassoon; Song Suite (Delmas); Les Cloches: (a) Noël, (b) Paques, (c) Pentecôte, (d) Toussaint); Quintet for Flute, Oboe, Clarinet, Horn, and Bassoon (Taffanel). 7.30, Time Signal. 7.31, News Bulletin. 7.45, Gramophone Dance Music. 8.15, Press Review in German. 8.30, A Play (Jules Romains), relayed from Paris. After the Programme, Press Review in French. 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.—12 noon,** Gramophone Concert of Eighteenth Century German Music; Johann Sebastian Bach: (a) The Brandenburg Concerto in F, No. 2, (b) First Movement from the Second Sonata for Violin and Harpsichord, (c) Toccata and Fugue; Handel: (a) March from Hercules, (b) Allegro from the Concerto in F, Op. 4, No.1, (c) Arioso, (d) Aria from Julius Cæsar, (e) Ballet Music from Alcina; Mozart: (a) Overture, Figaro, (b) Overture, Il Seraglio, (c) Ballet Music from Les petits riens, (d) Turkish March. 1.15 p.m., Time, News, Weather, Programme Announcements. 1.30, Concert from **Langenberg.** 2.0, Programme arranged by the Post Office, with Gramophone Records. 2.30, Advanced English Lesson. 3.0, Talk on Flowers. 3.30, Talk for Women. 4.0, Song Recital by Karl Paul Rau: Song of the Thirty Years War (Herrmann); Drei Wanderer (Herrmann); Salomo (Herrmann); Der Sieger (Kann); Der Doppelgänger (Schubert); Heimweh (Wolf); Morgenhymne (Henschel). 4.30, See **Munich.** 5.45, Time, Weather and Market Prices. 6.0, Talk: Labour in the New Italy. 6.25, See **Frankfurt.** 6.50, Time and News. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, Orchestral Concert, conducted by Hermann Zilcher: Part I, Concerto in G, for Pianoforte and Orchestra (Beethoven); Part II, Hermann Zilcher Compositions; Symphony No. 1 in A, Op. 17; Melodies from the Music to As you like it, Op. 33. 9.15, Richtofen—A Radio Play (Thor Goote). 10.30, Time, News, Weather and Programme Announcements. 10.45, Violin Recital, by Hans Rokohl; Sonata in F (Haydn); Polonaise brillante (Wieniawsky); Spanish Dance (Sarasate). 11.35, Dance Music. 12 **midnight,** Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

773 kc/s, 385 metres; 8 kW.—6.0 p.m., News Bulletin. 6.15, Popular Melodies. 6.30, Eine kleine Nachtmusik (Mozart). 6.45, Programme of Tangos. 7.0, Light Orchestral Music. 7.15, Racing Results, Market Prices, and News. 7.25, Local News. 7.30, Opera Music: Airs from: (a) La Juive (Halévy), (b) Siegfried (Wagner), (c) Samson and Delilah (Saint-Saëns). 7.45, Concert by a Viennese Orchestra. 8.15, Extracts from Sound Films. 8.30, Organ Solos. 8.45, Popular Melodies. 9.0, Concert by the Toulouse Symphony Orchestra, conducted by M. Tartanac. In the interval, Light Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco. 11.0, Military Music. 11.15, Instrumental Solos. 11.30 to 12 Midnight, Programme in English by the I.B.C., W. Brown-Constable announcing. 11.30, Concert: Part I—Musical Comedy Selections, The Belle of New York (Kerker), Floradora (Stuart); Part II—Dance Music: Lullaby of the Leaves; Put that Sun back in the Sky; While Hearts are Singing; As long as Love lives on. 11.57, I.B.C. Good-night Melody. 12 Midnight, News, Weather, and Announcements. 12.5 a.m. (Wednesday), Music by a Symphony Orchestra. 12.15, Accordion Music. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—5.15 p.m. till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 59[illegible] kc/s, 500.8 metres.—5.15 to 6.0 p.m.,** Dance Music from the Savoia, Milan. 6.35, Giornale Radio, Agricultural and Dopolavoro Notes. 7.0, Time, Report of the Royal Geographical Society, and Gramophone Records of Light Music. 7.20, Giornale Radio. 7.45, Gramophone Records (contd.). 8.0, Announcements, Giornale Radio, Weather, and Tourist Report. 9.0, Variety Programme. 10.0 Talk. 10.15, Dance Music. 11.0 (approx.) Close Down.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and **5,969 kc/s, 50.26 metres (Evening);** [illegible] kW. —**11.0 to 11.15 a.m.,** Religious Information in English. **8.0 to 8.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres.—5.30 p.m.,** Liszt Recital by Gisela Göllerich: Sonata in B Minor; Concert Etude in D Flat. 6.10, Agricultural Talk. 6.35, French Lesson. 7.0, Concert by the Otto Römisch Orchestra: Overture, Eine Ballnacht (O. Strauss); Waltz, Rosenketten (Jessel); Intermezzo, Ewiger Frühling (Siede); Potpourri Extravaganzen (Morena); Overture, Bruder Straubinger (Eysler); Spiegelbild (Lehár); Operetta Potpourri; Von Wien durch die Welt (Ruby). In an interval at 7.35, Time, Weather and Programme Announcements. 8.15, Talk: A Journey to Latvia, illustrated by Gramophone Records. 8.45, Concert by the Vienna Symphony Orchestra, conducted by Rudolf Nilius, Soloist: Richard Krotschak ('Cello): Suite from Das Glückskind (Lustgarten); Concerto in B Minor, Op. 104 (Dvorák); Sinfonia breve (Graener). 10.10, News, Weather and Announcements. 10.25, Dance Music by the Gustav Rohn Band, relayed from the Café Palmhof.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.5[illegible] a.m., Time Signal and Fanfare from St. Mary's Church, Cracow. 12.5 p.m., Programme Announcements. 12.10, Popular Music on Gramophone Records. 1.20, Weather Forecast. 1.25 to 3.10, Interval. 3.10, Announcements. 3.15, Economic Notes. 3.25, Aviation Report and Anti-Gas Drill. 3.30, Announcements. 3.35, Book Review. 3.50, Popular Music on Gramophone Records. 4.25, Talk for Teachers. 4.40, Talk. 5.0, Symphony Concert by the Warsaw Philharmonic Orchestra, conducted by G. Fitelberg: Mediæval Suite (Glazunov); Serenade (Casella); Rhapsody (Lalo). 5.55, Programme Announcements. 6.0, Educational Talk. 6.20, News. 6.25, Light Music relayed from the Café Gastronomia. 7.0, Miscellaneous Items. 7.20 Agricultural Correspondence Classes. 7.30, Talk: Racial Elements in Music. 7.45, Radio Journal. 8.0, Concert of Music by M. Tajcevic, relayed from **Zagreb, 977 kc/s, 307 metres.** 9.20, Sports Notes. 9.25, Radio Journal. 9.30, Concert by the Station Orchestra, conducted by S. Nawrot. Overture, Orpheus in the Underworld (Offenbach); Waltz, Wine, Women, and Song (Johann Strauss); Serenade (de Micheli); Ballet Music from Lakmé (Delibes); Polka (Rubinstein); March (Sousa). 10.0, Reading. 10.15, Song Recital. 10.55, Aviation Weather Forecast and Police Notes. 11.0, Dance Music relayed from the Oaza Dance Hall.

WILNO

533 kc/s, 563 metres; 16 kW.—6.0 p.m., See **Warsaw.** 6.20, Announcements. 6.25, Pianoforte Music on Gramophone Records. 6.40, Talk in Lithuanian: Treaties for the Protection of National Minorities. 6.55, Miscellaneous Announcements. 7.0, Reading. 7.10, Announcements. 7.15, Talk on Wireless. 7.30, See **Warsaw.** 10.15, Recital of Songs and Opera Arias by M. Leo Kochowiez (Tenor). 11.30, See **Warsaw.** 12 **Midnight,** Close Down.

ZAGREB

977 kc/s, 307 metres; 0.75 kW. Transmits at intervals from **12.20 p.m.—8.0 p.m.,** Concert of Music by Marko Tajcevic. 9.15, Violin Recital by L. Koffmann: Sonata in G Minor (Tartini); Sonata in A (Vivaldi); Sonata (Corelli). 10.0, News and Weather. 10.10, Dance Music Relay. 11.0 (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

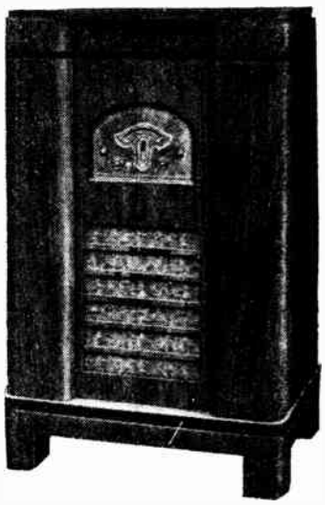
Foreign Programmes continued on page XIII.

PROGRAMMES CONTINUED

"WIRELESS WORLD" *tested*

ATWATER KENT Superhet Model 480

A 10-Valve A.C. Set for the Short and Medium Wavebands



EXTRACTS from "WIRELESS WORLD" Report

(See "Wireless World," April 21st, 1933. If mislaid we will gladly send the complete Report.)

1. **"NOT A SINGLE WHISTLE WAS EVIDENT ON THE MEDIUM WAVEBAND."**
2. **"SENSITIVITY IS OF A VERY HIGH ORDER."**
3. **"AUTOMATIC VOLUME CONTROL FUNCTIONS ADMIRABLY."**
4. **"NO DIFFICULTY WAS EXPERIENCED IN TUNING IN AMERICA** *during the early hours of the evening."*
5. **"QUALITY OF REPRODUCTION REACHES A HIGH STANDARD,** *and it is unusually brilliant with the tone control set to give full treble."*
6. **"THE PERFORMANCE OF THIS SUPERHETERODYNE IS DESERVING OF THE HIGHEST PRAISE."**

The above are only a few brief extracts from a two-page diagram-illustrated article but we venture to suggest that higher praise has rarely, if ever, been bestowed upon any receiver by any independent technical publication. For those who are interested in short and medium wave reception this model is an outstanding instrument. The complete "Wireless World" report will gladly be sent on application.

FEATURES OF ATWATER KENT MODEL 480.

Ten-valve A.C. multi-range superheterodyne with single-dial tuning, moving-coil speaker, automatic volume control, and push-pull output stage. Wave-length range 14-550 metres with built-in coils. Variable-mu H.F. pentodes for the H.F., first detector, and both I.F. stages. Triodes for the oscillator, A.V.C., and second detector, and pentodes in the output stage; valve rectifier. Three pre-selector circuits are operative on the medium waveband, and two on the short wavelengths. The six I.F. circuits are tuned to 472.5 kc. The controls include: (1) Tuning control with calibrated and illuminated dial and neon tuning indicator. (2) Combined wave range and local-distance switch. (3) Combined mains on-off switch and manual volume control. (4) Tone control switch. Cabinet is of figured walnut of solid construction and singular beauty. Price 45 guineas. (This does not apply in I.F.S.)

MODEL 137.

Among other Atwater Kent receivers available is the 137 range. All models have Automatic Volume Control. Illustrated literature will gladly be sent on application.

PRICES:

Radio Table Model 137	**25 Gns.**
Radio Console Model 137 C.	**32 Gns.**
Radiogram Model 137 R.G.	**45 Gns.**

With Garrard Automatic Record Changer 7 Guineas extra.
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Telephone: Mayfair 3446/7. Telegrams: Atwakento, Wesdo, London.

Also Sole Distributors for Irish Free State. **Dublin Depot: 40 Dawson Street.**

Advertisements for "The Wireless World" are only accepted from firms we believe to be thoroughly reliable.

H.T. costs cut to 1/- a year

Class	Type of Set	Annual running cost of batteries	Ekco Unit suitable	Cost price of Ekco Unit suitable	Annual running cost of Unit*
A.C. Mains					
1.	Screened-Grid 3; Straight Three, and smaller sets	50/-	A.C. 12 12 m/a Output	55/- or by Easy Payments	1/-
2.	S.G. Three with Pentode; Screened-Grid Four; Sets with "Class B" Output	75/-	A.C. 18 18 m/a Output	67/6 or by Easy Payments	1/6
3.	S.G. Four with Pentode; Super-Hets.; 5-Valve Sets; Sets with 'Class B' Output	100/-	A.C. 25 25 m/a Output	77/6 or by Easy Payments	2/-
D.C. Mains					
1. 2. 3.	Any set shown above	50/- to 100/- as shown above	D.C. 15/25 15 or 25 m/a Output	39/6 or by Easy Payments	Class 1 1/- Class 2 or 3 1/7

L.T. charging costs 6d. a year extra (instead of 25/- a year!). Combined H.T. and L.T. Charger Units from 79/6 (for A.C. Mains only).

*Based on 3 hours' daily use.

Study the table shown alongside. It gives some illuminating facts about running costs of sets. It shows that whatever your set, providing you have electric light, you can reduce its running costs to a negligible amount by installing an EKCO Power Unit in place of expensive batteries! It shows that an EKCO Power Unit saves the money it costs in the first year of use! And Easy Payments are as low as 3/8 per month. All you have to do is to connect the suitable EKCO Unit in place of the battery, plug in to the electric light or power and switch on—that's all! No alterations to set, valves or wiring. Consult your dealer or post coupon below.

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EKCO

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Please send me FREE illustrated literature of EKCO All-Electric Radio.

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Address.....

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The Wireless World

THE PRACTICAL RADIO JOURNAL

23rd Year of Publication

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As many of the circuits and apparatus described in these pages are covered by patents, readers are advised, before making use of them, to satisfy themselves that they would not be infringing patents.

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EDITORIAL COMMENT

Quality *v.* Cost

No Room for Compromise

IN recent issues we have drawn attention to the dangers which might accompany efforts to cheapen wireless apparatus, and, in particular, the complete receiver, where such cheapening impaired electrical or mechnical efficiency. The industry cannot afford to face the increased cost of servicing which would be a direct result of such unwise economies, but what we view as the most serious aspect of any general policy on the part of the industry to cheapen the product is the inevitable departure from the standard of quality of reproduction, which we consider it is imperative that the wireless manufacturer should maintain.

In years gone by a good deal of criticism has been levelled by musicians and others at the relatively poor quality of broadcast reproduction, but as time went on, and the design of receivers improved, this prejudice against wireless on the part of the musically trained and the discerning sections of the public has largely disappeared.

Still, finality in quality of reproduction has not yet been attained, and the highest praise is still only applicable to a small proportion of the receivers sold, so that we are still a long way off the time when all wireless sets can be regarded as a satisfactory permanent advertisement for broadcasting.

Now it would seem that we have reached another stage of "progress," when the tendency is to try to compromise between quality of reproduction and cost: we contend that this is a compromise which ought never to be entertained. There should be no compromise with quality. There are already far too many sets in existence which, every time they are switched on, damage the prestige of broadcasting and discourage the public from enthusiasm over the benefits of the service.

It is because we hold strong views on the necessity for maintaining a high standard of quality of reproduction that we feel considerable uneasiness at the opinions expressed recently by leading figures in the wireless industry to the effect that sets must be cheapened, and also that the midget set must claim the attention of British manufacturers as likely to be the biggest seller in the near future.

Maintain a High Standard

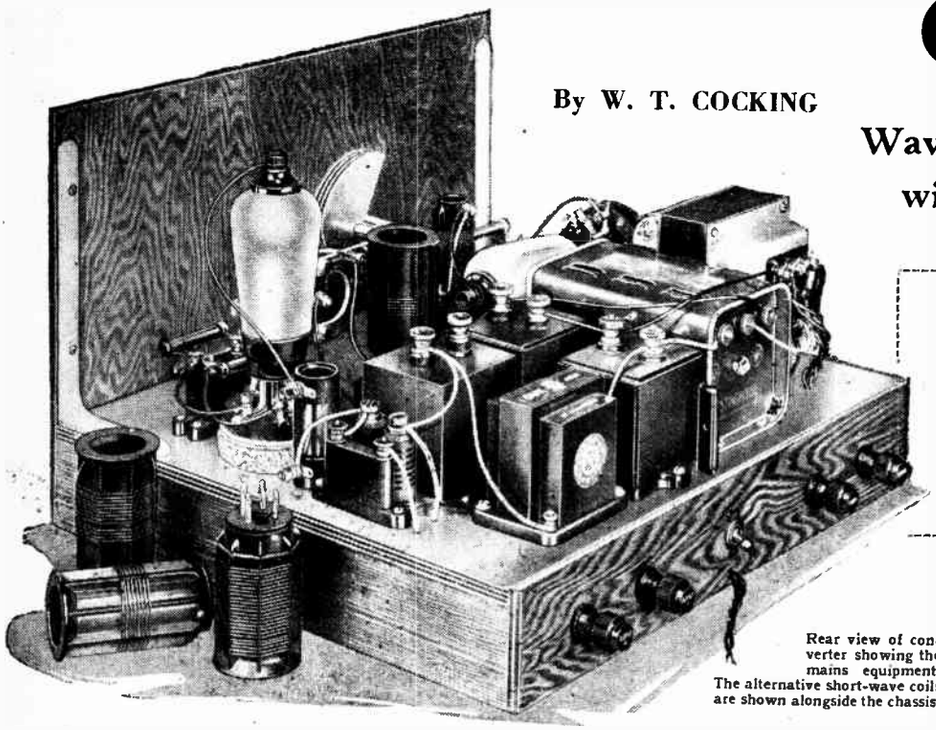
The midget set is a good example of clever design, because of its compactness and portability, but not of quality in reproduction. In our view this fact alone should make the British manufacturer hesitate to adopt sets of this type as a standard for his production of the future. At present it would seem that midget size and good quality of reproduction are incompatible requirements, and until means are found for bringing the quality of the midget set up to a standard of which the industry can be proud we should hesitate to support it. Even in America, where the midget set has found favour, manufacturers are already realising its shortcomings. A prominent representative of the American radio industry has recently stated: "The majority of manufacturers believe that the large console receiver will return and the midget set be used to serve its original purpose as the *second set*." As a second set there is a very good excuse for the midget, but this country has, as yet, by no means reached the stage where such saturation has been achieved that second sets are in demand.

Universal A.C. Short-wave Converter

By W. T. COCKING

Wave-range of 12·5 to 100 Metres with any Broadcast Receiver

Features.—*A superheterodyne type short-wave unit giving reception over the 12½ to 100 metres waveband with four plug-in coils. Good reception is readily obtainable with any sensitive receiver set to work on the long waveband. The unit is fitted with its own mains equipment and no alteration whatever to the receiver is needed.*



Rear view of converter showing the mains equipment. The alternative short-wave coils are shown alongside the chassis.

SUCCESSFUL short-wave reception depends very largely upon the receiver employed, and high sensitivity and ease of control are the two most important factors. The deservedly popular detector-L.F. type of set is capable of giving very satisfactory results if it be correctly designed and operated. It leaves much to be desired, however, for its tuning adjustments are very critical, it does not lend itself well to mains operation, and at best its sensitivity is lower than is desirable.

There can be little doubt that the superheterodyne forms the best short-wave receiver; there is no limit to the possible sensitivity, tuning is less critical, mains operation is quite easy, and it is probably the only type of short-wave set in which automatic volume control can be included. A purely S.W. superheterodyne, however, is likely to be of limited application, appealing only to overseas listeners and S.W. enthusiasts. To the majority the short-wave bands alone give an insufficient range of programmes.

An all-wave superheterodyne is the obvious solution, and one highly satisfactory design was recently described in *The Wireless World*.[1] The necessary waveband switching, however, often proves complicated, and constructional difficulties begin to make themselves apparent. Where short-wave reception is required in addition to the normal broadcast wavebands, therefore, the best method often consists in using an ordinary receiver in conjunction with a short-wave adaptor.

Such an adaptor operates on the superheterodyne principle, and, in effect, converts the normal waveband receiver into a S.W. superheterodyne. It has long been known that this is an entirely satisfactory method of reception when the receiver is of the straight type, but it has been believed that it would lead to difficulties when applied to an ordinary superheterodyne.

When a S.W. converter is used with a superheterodyne, of course, the apparatus becomes a double superheterodyne with double frequency-changing. There is no objection to this in itself, but it has been felt that the presence of two oscillators in the receiver would lead to the production of whistles, since there is a possibility of the S.W. oscillator beating with harmonics of the ordinary oscillator.

In spite of the knowledge that for this very reason the scheme had been abandoned in America, it was felt to be worth a trial. Conditions in this country and in America are by no means identical, and, if successful, the arrangement would provide the solution of the problem of

[1] The All-wave Monodial. *The Wireless World*, January 27th and February 10th, 1933.

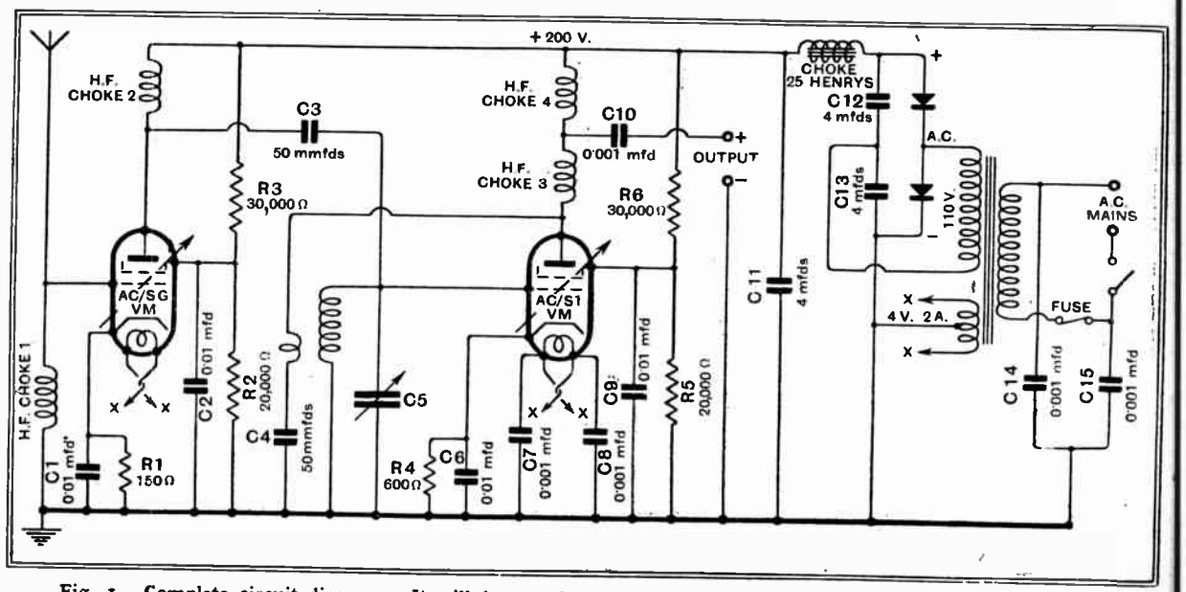


Fig. 1.—Complete circuit diagram. It will be noted that the aerial circuit is aperiodic and that the tuning condenser of the autodyne frequency changer is the sole control.

Universal A.C. Short-wave Converter—

obtaining easy short-wave reception without still further complicating the design of the receiver. It is pleasant to record, therefore, that it proved entirely satisfactory, *provided that the receiver were set to work on the long waveband.*

This proved to be the secret of obtaining satisfactory results with a S.W. converter and a superheterodyne type receiver. The American failure to obtain a good performance can be attributed to the fact that their receivers do not contain a long wave-range. The necessity for keeping the receiver tuned to the long waveband can readily be seen. Suppose that we set it on the medium waveband, so that the oscillator is functioning at 1,000 kc. The S.W. tuning range is from 3,000 kc. to 24,000 kc., and all the oscillator harmonics from the 3rd to the 24th fall within it. Harmonics up to about the 20th are quite strong enough to produce a whistle, so that there are endless possibilities of interference.

If, however, we set the receiver on the long waveband so that the oscillator is working at 200 kc., the lowest harmonic to fall within the S.W. range is now the 15th, and the highest is the 120th. Harmonics higher than the 20th can be ignored, so that we shall be quite free from whistles on wavelengths below 75 metres, and obtain not more than six between 75 metres and 100 metres.

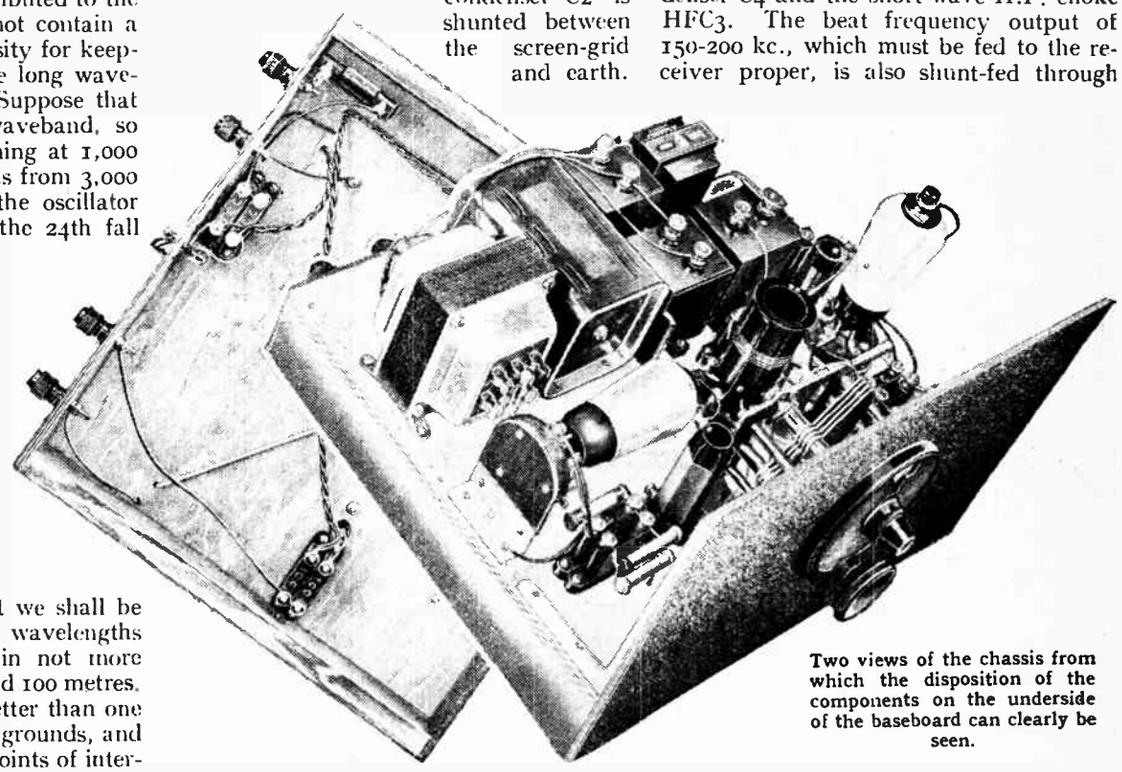
In practice, matters are better than one might suppose on theoretical grounds, and in the actual tests only two points of interference were found, both above 80 metres. Interference of this type, therefore, can be considered as negligible, and it becomes readily possible to construct a S.W. converter which can be used with any ordinary straight set or superheterodyne, and which need have but a single control. It can be connected to any receiver without the smallest modification.

The circuit diagram of the complete converter is shown in Fig. 1, and it will be seen that it contains its own A.C. mains equipment. This renders it truly universal in its applications, for were the power to be derived from the receiver proper there are few sets which would not need extensive modification.

Aerial Loading Removed.

The two variable-mu valves are used as an H.F. stage and as an autodyne-type frequency changer. The H.F. valve provides a moderate degree of amplification, but its chief purpose is to remove the aerial loading from the tuned circuit and to prevent aerial radiation. The aerial coupling is aperiodic, and the choke HFC1 is highly important if the converter is to be used anywhere near a high-power medium-wave broadcasting station. If this choke has too high an inductance, an appreciable signal from the local station will be placed on the grid of the first valve, and cross-modulation of S.W. signals will occur. If the choke inductance be too low, however, S.W. signals will be weak. The component selected has been found to have the optimum inductance, and it is advised that no change be made at this point.

The H.F. valve is biased by the resistance R1 of 150 ohms, shunted by the 0.01 mfd. condenser C1, and the screen-grid is fed from the potentiometer comprising the 30,000 ohms resistance R3 and the 20,000 ohms resistance R2; another 0.01 mfd. condenser C2 is shunted between the screen-grid and earth.



Two views of the chassis from which the disposition of the components on the underside of the baseboard can clearly be seen.

The frequency changer has the tuned circuit connected in its grid circuit, and the coil is tuned by a 0.00015 mfd. variable condenser fitted with a two-ratio slow-motion dial. This dial is provided with a normal ratio of about 10-1 for rapid searching, and with a micrometer adjustment giving a ratio of 500-1 for accurate tuning; a ratio of this order is very necessary on the short wavelengths. The coupling to the H.F. valve is arranged through a 50 mmfd. condenser C3 with the H.T. supply to the anode of the H.F. valve through the S.W. H.F. choke H.F.C.2. The frequency changer valve is self-biased by the voltage drop along the 600 ohms resistance R4, which is by-passed by a 0.01 mfd. condenser C6, and the screen is fed from a potentiometer built up from the resistances R6 and R5 of 30,000 ohms and 20,000 ohms respectively. Another 0.01 mfd. by-pass condenser C9 serves to keep the screen-grid effectively at earth potential.

The reaction coil is shunt-fed from the anode circuit through the 50 mmfd. condenser C4 and the short-wave H.F. choke HFC3. The beat frequency output of 150-200 kc., which must be fed to the receiver proper, is also shunt-fed through the 0.001 mfd. condenser C10 and the long wave type choke HFC4.

The mains transformer is of the shrouded type, and is fitted with a screened primary; in addition, two 0.001 mfd. 1,000 volts test condensers C14 and C15 are connected between the mains and earth to prevent modulation hum. For the same purpose, another pair of 0.001 mfd. condensers C7 and C8 are connected to earth from each side of the frequency-changer heater. The H.T. supply is taken from an H.T.6 metal rectifier used in the voltage doubling circuit with 4 mfd. condensers C12 and C13, while smoothing is

LIST OF PARTS

After the particular make of component used in the original model, suitable alternative products are given in some instances.

1 Variable condenser, 0.00015 mfd. **C5** (Eddystone) — **Cyldon type SW15**

1 Slow-motion dial with micrometer adjustment — **Igranic type 2296/56**

2 S.W. H.F. chokes HFC1, HFC3 — **Igranic**

1 S.W. H.F. choke HFC2 — **Eddystone**

2 5-pin valveholders — **Eddystone type 500**

1 4-pin valveholder — **Eddystone type 501**

1 Set S.W. coils, types 2BB, I.B, Y and R — **Eddystone 932**

2 Fixed condensers, 0.001 mfd., 1,000 v. D.C. test **C14, C15** — **T.C.C.**

3 Fixed condensers, 0.001 mfd. **C7, C8, C10** — **T.C.C. type 34**

2 Fixed condensers, 0.00005 mfd. **C3, C4** — **T.C.C. type 34**

4 Fixed condensers, 0.01 **C1, C2, C6, C9** — **T.C.C. type 34**

2 Fixed condensers, 4 mfd., 200 v. D.C. working **C12, C13** — **T.C.C. type 61**

1 Fixed condenser, 4 mfd., 400 v. D.C. working **C11** — **T.C.C. type 80**

1 Smoothing choke, 25 h. 850 ohms (Trix. type C30A, model 18M) — **R.I.**

1 Mains transformer, shrouded with screened primary Secondaries, 110 v. 75 m.a., 4 v. 2 amps. C.T. — **Sound Sales type SS/Shielded**

1 Metal rectifier — **Westinghouse H.T.6**

1 Q.M.B. On-off switch — **Bulgin type S80**

1 Valveholder bracket — **Peto-Scott**

1 Resistance, 150 ohms **R1** — **Claude Lyons**

1 Resistance, 600 ohms **R4** — **Claude Lyons**

2 Resistances, 20,000 ohms **R2, R5** — **Claude Lyons**

2 Resistances, 30,000 ohms **R3 R6** (Dubilier, Erie) — **Claude Lyons**

1 H.F. choke HFC4 — **McMichael Binocular Junior**

4 Terminals, A.E.+Output—Output — **Belling-Lee, type "B"**

1 Plymax baseboard, 12×14×3/8. Panel, 14×9×3/16. plywood — **Peto-Scott**

Valves: 1 Mazda AC/SGVM and 1 Mazda AC/SIVM

Universal A.C. Short-wave Converter—

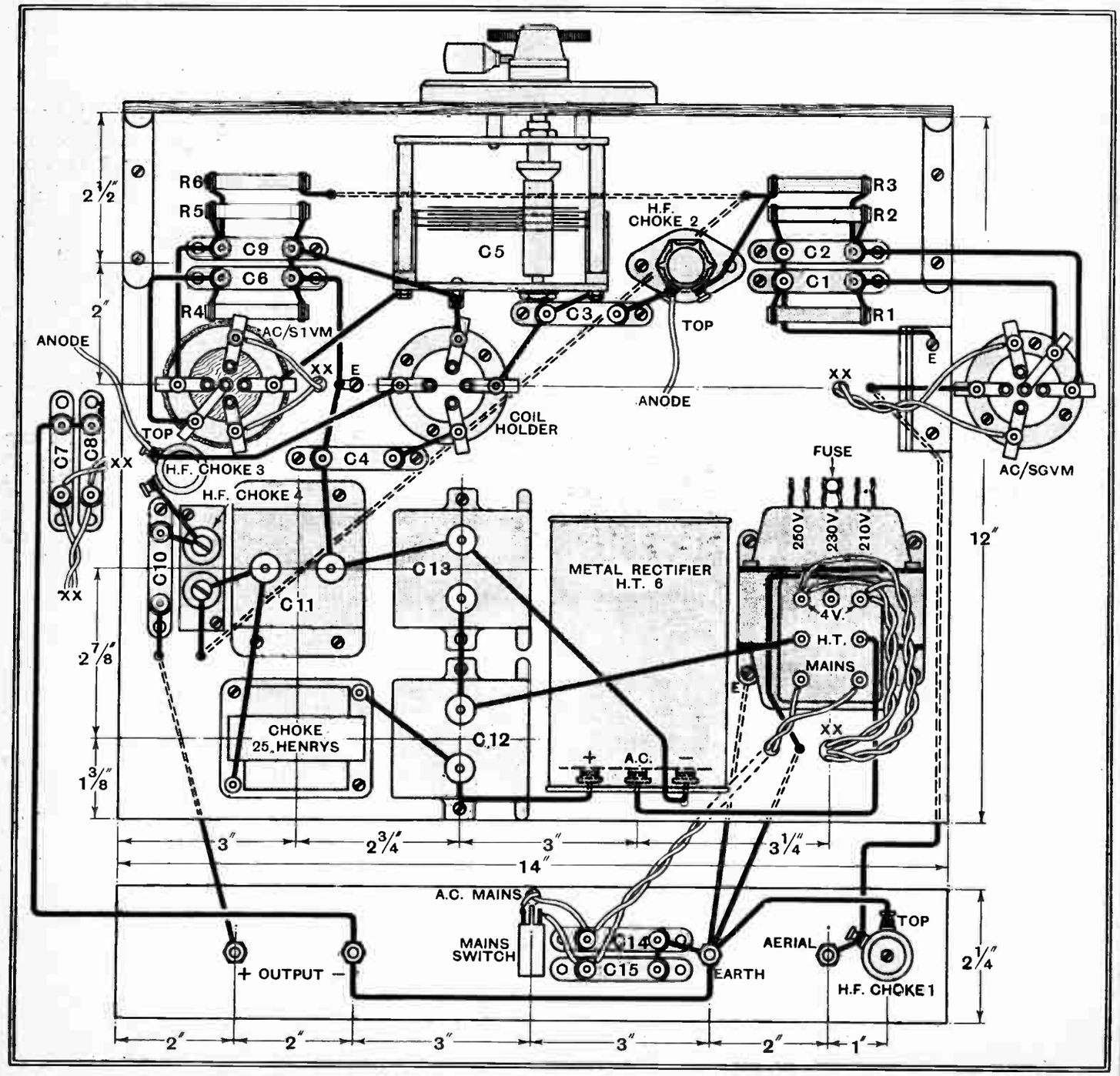
provided by a single 25H. 850 ohms choke in conjunction with a 4 mfd. condenser C11. At the small current taken by the unit, a supply of 200 volts is available for the anodes of the valves.

Constructionally, the converter is very simple, and the details will be apparent from the drawings. The H.F. valveholder, it should be noted, is mounted vertically on a bracket, so that the valve lies horizontally; thus considerably shortening the wiring. The valveholder for the frequency-changer is mounted on a block of sponge rubber, in order to avoid howling due to acoustic reaction. The valveholder should be fastened to a thin disc of wood which is glued to a disc cut from half-inch sponge rubber. This, in turn, is glued to the aluminium covered base, and it will stick securely if the aluminium surface be roughened slightly. All connections to this valveholder, of course, should be made with flexible wire.

In use, the aerial and earth are connected to the terminals on the converter, and the two output terminals are joined to the aerial and earth terminals of the receiver. Care should be taken to see that the lead from C10 is connected to the aerial, and not the earth, terminal of the set. A good earth should be used if hand-capacity effects are to be avoided, and for the best results the aerial is equally important. The best aerial for the broadcast bands, however, is not necessarily the best for the short wavelengths, so that it will often pay to do a little experimenting. It is the writer's experience that a small aerial is often better below 100 metres than the usual horizontal span of 40ft. or so. A simple vertical wire of some 20ft. or 30ft. will often be the most satisfactory if it can be erected; much depends on local conditions, however.

Normally, the receiver should be tuned to a wavelength a little above Huizen, for there is then little chance of experiencing interference from any longwave station. Should the receiver be insensitive at this point, however, a lower wavelength should be selected. All tuning can then be carried out on the converter dial, and it will be found quite critical. The dial

PRACTICAL WIRING PLAN



Layout of the components above the baseboard. The under-baseboard wiring is shown dotted.

Universal A.C. Short-wave Converter—

settings will depend upon the wavelength to which the receiver is tuned, so that if a record be kept one should not omit to note also the receiver dial setting.

The fact that the tuning is dependent on the receiver as well as on the converter can be turned to useful account. Below 20 metres the converter dial settings are critical even with the 500-1 ratio. When a station has been approximately tuned in, therefore, the exact adjustment may often be most easily obtained on the receiver dial. The tuning of this will be very flat in comparison with the converter dial, for the full 100 deg. will give a frequency change corresponding to only 1 deg. at some parts of the S.W. dial. The adjustment of volume is also carried out by the control fitted to the receiver.

For the convenience of readers constructing this converter, a full-size blue print is available from the publishers at 1s. 6d., post free.

The converter has been tested with a sensitive type of superheterodyne fitted with automatic volume control, and it gave a highly satisfactory account of itself. Literally dozens of tonic-train morse stations could be obtained, and at suitable times, excellent S.W. broadcasting was available. 2XAD, 3XAL, and 8XK were all well received, as well as numerous European stations.

If results seem poor when first testing the converter, a defect should not be suspected unless another S.W. receiver is available for a comparison. There are by no means infrequent spells when conditions are extremely poor, and if it should happen that the converter is first tried out during one of these, little may be receivable, even although the apparatus is functioning with full efficiency. A suitable time of the day should also be chosen, for some wavelengths are useless at certain hours, and alive with signals at others.

In general, wavelengths below about 25 metres are of little use after dark, and it is usually a waste of time to search over this range. Just about sunset, however, the 16-25 metres band is often at its best, and good reception of the midday American programmes is often possible. Below 16 metres full daylight seems necessary. Conditions around 30 metres usually seem to be little affected by the time of day, but the higher wavelengths are often at their optimum after dark.

In conclusion, it should be pointed out that although the best results will be secured with a highly sensitive A.V.C. superheterodyne, such as the Monodial A.C. Super, simpler apparatus is entirely adequate for good reception. An efficient three-valve set is not too small, if it be fitted with reaction, and a set such as the Ferrocart III should prove entirely satisfactory.

A short-wave converter built to this design is available, as usual, for inspection at 116/117, Fleet Street, London, E.C 4.

DISTANT RECEPTION NOTES

Lively Conditions on Both Wavebands

IT is reported, though I have not been able to obtain definite confirmation, that the new Sofia transmitter with a rating of 14 kilowatts is now ready for action. If this is so, it will mean a certain amount of reshuffling, for though the wavelength of 318.8 metres unquestionably belongs to Bulgaria, it has been used for some little time by both Dresden and Naples. One rather wonders whether the transmission heard on occasional nights of late on a variety of wavelengths between 318.8 and 321.9 metres was the Sofia station testing. It was not possible to obtain any call-sign, but there certainly was a transmission there, and when it was working it interfered badly with Göteborg.

A new Zagreb transmitter will shortly replace the present 750-watt plant on the wavelength of 307.1 metres. The station now under construction will have a power output of 15 kilowatts. It is situated, in accordance with modern ideas, some distance outside the city. The studios are in Zagreb itself, and working will be on the same lines as that which takes place between Broadcasting House and Brookmans Park. Here, again, some rearrangement will probably be necessary, for at present the wavelength of 307.1 metres is used jointly by Zagreb, Radio-Vitus, and Falun. When I say that Radio-Vitus uses the wavelength, I mean that he does so in theory. Actually there were no two consecutive nights during the whole of March upon which this little Parisian pest used the same wavelength. It wobbled between 306 and 309 metres, being successful in the process in interfering with both Cardiff and Bordeaux Lafayette. It seems ridiculous that one small and unimportant station should be allowed to make such a nuisance of itself.

I hear that an entirely new wavelength scheme for Europe is to be submitted by the U.I.R. for consideration at the Lucerne Conference, which opens in the middle of May.

It is to be hoped that the Lucerne Conference will devote special attention to the problem of sideband splutter. This is unquestionably due in most cases to over-modulation or, at any rate, to modulation of far greater depth than is necessary on speech transmission.* If some agreement can be reached limiting the modulation when speech is being transmitted to a reasonable amount one of the most serious causes of interference between stations will automatically disappear. On the other hand, if nothing is done in this direction we are likely to be faced with the sorry spectacle of station after station ruining the transmissions of its wavelength neighbours.

Long-distance conditions continue to be little short of amazing. The receiving set has that pleasant lively feeling which is associated with D.X. at its best. There is practically no atmospheric interference, and almost every division of the tuning dials brings in something.

A POPULAR ITALIAN STATION. A typical studio at Trieste. Since the erection of the modern transmitting plant, Trieste has steadily increased its appeal to listeners all over Europe.

Motala is now one of the star stations of the long-wave band, both the quality and the volume obtainable from it being magnificent. Kalundborg suffers occasional Morse interference, but is otherwise first rate. Zeesen is almost the only long-wave station of importance which is not quite up to the mark. One wonders whether experiments are being made with some part of the transmitting plant.

The choice amongst medium-wave stations is extraordinarily wide. The pick are perhaps Rome, Langenberg, Prague, Strasbourg, Brussels No. 1, Heilsberg, Hilversum, Leipzig, Stockholm, Breslau, Trieste, Katowice, and Florence. There are, though, many others which deserve attention, and not the least important of these are Lyons Doua, Beromünster (at the moment free from heterodyne interference), Nürnberg, Bratislava, and Brno.

D. EXER.

*The principal cause is more probably frequency modulation.—ED.

100 Metres and Below

The Evolution of the Ultra-short Wave

By C. C. WHITEHEAD

THE congestion of the ether is becoming so great that efforts are continually being made to extend the channels of communication to higher frequencies. Wavelengths as low as 12 metres are now commonplace, but attempts to work below this are fraught with many difficulties. At about one metre the period of oscillation is comparable with the time that the electrons take to pass from electrode to electrode in the valve, and the ordinary valve-oscillator theory breaks down. The accompanying article outlines the history of short-wave communication and summarises the position to-day.

SINCE the War, on account of the increasing congestion in the field of radio communication, attempts have been made to extend in every possible direction the range of frequencies available for this purpose.

At the close of the War the generally used wavelengths ranged between 100 and 20,000 metres (3,000 to 15 kc.). Since the 10-15 kc. range verges upon the audio-frequency spectrum, there was obviously no room there for extension, so wavelengths had perforce to be found in the zone below 100 metres (above 3,000 kc.). How the use of wavelengths below 100 metres and down to 15 metres was developed is now a matter of fairly common knowledge.

Of course, there was one great advantage in the possibility of using ultra-short waves, apart from the relatively efficient

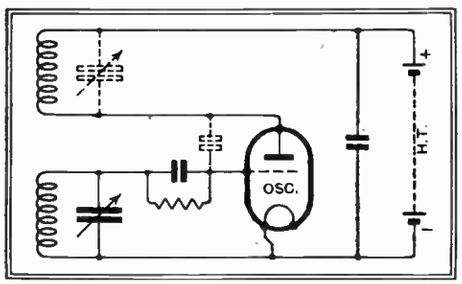


Fig. 1.—The fundamental oscillator circuit. If grid and anode circuits are in resonance the electrostatic coupling produced by the valve's electrode capacity is sufficient to cause oscillation.

aerial systems which could be used in connection with them, i.e., the fact that stations could be "packed closer" (since the spacing was a matter of frequency difference) as the wavelength was reduced. Even so, the waveband between 15 and 100 metres soon became congested, and so the possibility of using even shorter waves was soon investigated.

Though it is not really within the province of this article, it may be profitable to discuss briefly the properties of these very short waves. As predicted by theory, it was very soon discovered that they were too short to be reflected or refracted by the ionosphere, and therefore there was no phenomenon of "skip distance," due to the presence of the direct and indirect rays. Also the "ground wave" suffered very rapid attenuation, so that sending or receiving apparatus situated close to the ground had a very short range. In fact, the range bore a direct relationship to the height of the antenna from the ground. If, however, the two stations were situated so as to be within sight of each other, very long ranges were obtained with very small powers. The waves behaved in this way in a very similar manner to the much shorter light waves, thus earning for themselves the name "quasi-optical."

Very early during the pioneer work on these waves in the field of communication it was suggested that it would be possible to control the "service area" of a transmitter by altering the effective height of the antenna. The use of directive aerial systems was also easy and economical.

But some workers in this particular branch of radio communication have long felt that, in spite of theory and early results, it might be possible to attain long ranges with these waves. Some recent experiments have tended to confirm this view, ranges well beyond the "optical range" having been attained, first between France and Corsica on wavelengths of the order of 3 metres, and lately between ship and shore over a distance of 168 miles on a wavelength of 57 centimetres.[1] The mechanism of propagation in these cases is not yet understood.

[1] Ref. recent talk before the Royal Institution by Marchese Marconi.

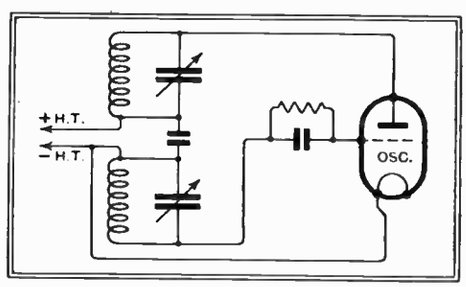


Fig. 2.—The circuit of Fig. 1 redrawn without the H.T. battery.

Prior to this time, methods of generating very short waves had been sporadically used, mostly for physical research purposes. The basis of nearly all successful methods is, of course, the triode, in one form or another.

There are two forms of circuit suitable for the generation of very short waves by means of the triode valve: First, the reaction circuit, and, secondly, the "electron-oscillation" circuit. With care, the reaction type of circuit may be used to generate wavelengths down to 1 metre in length, but the power available and the efficiency falls off rapidly below 2 metres. This is because the period of oscillation ($1/f$) is comparable with the time of transit of the electrons within the valve,

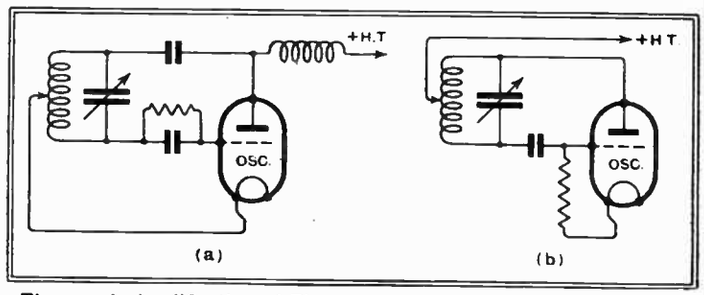


Fig. 3.—A simplification of Fig. 2 producing the well-known Hartley circuit with (a) series and (b) shunt feed.

so that it becomes impossible to ensure that there shall be the correct phase relationship between the electrode voltages and currents according to standard valve-oscillator theory to give normal efficiency.

To generate wavelengths shorter than a metre in length, use must be made of the natural period of flight of the electrons between the valve electrodes. This is the basis of the "electron-oscillation" methods of generating very short waves, due in the first place to Barkhausen, Kurz, Gill, and Morrell. By these means waves as short as 5 centimetres have been successfully generated and controlled.

Oscillation systems

The application of reaction methods of producing ultra-short waves is very interesting in its development, and throws light upon the question of valve oscillator circuits in general.

Consider the fundamental oscillator circuit shown in Fig. 1. The coupling between the grid and anode circuits may be either by means of the interlinking magnetic fields of the two coils, the inter-electrode capacity (grid-anode) of the valve, or a combination of both. Whether this coupling is sufficient to produce oscillation will depend, among other things, upon how close to mutual resonance the two circuits are. If they are in resonance, the slightest magnetic coupling, or the small amount of electrostatic coupling represented by the inter-electrode capacity

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of the valve is amply sufficient to produce oscillation. Hence the "tuned plate-tuned grid" type of oscillator favoured by amateur short-wave transmitters.

The circuit of Fig. 1 may be redrawn as in Fig. 2. Since the source of H.T.

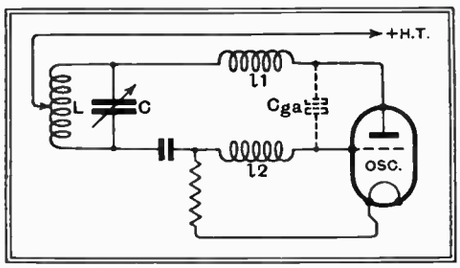


Fig. 4.—An oscillator for a wavelength of about four metres.

contributes nothing to the sum of the H.F. potentials, we have omitted drawing it in. The two coils and tuning condensers are seen to be virtually in series, so an obvious simplification is as shown in Fig. 3, producing the well-known Hartley circuit, either "series" (Fig. 3 (a)) or "shunt" fed (Fig. 3 (b)).

Any of the types of oscillator just described may be used with success on ordinary short wavelengths (down to 5 metres), but when we wish to generate shorter waves still they are not so satisfactory. Using an ordinary large receiving valve or small transmitting valve, the lengths of the leads within the valve may be quite as great as the length of wire forming the coil, so that, instead of having a true Hartley circuit as in Fig. 3, we have the queer arrangement shown in Fig. 4. This leads to several troubles. First, the relative amount of inductance included between the condenser terminals

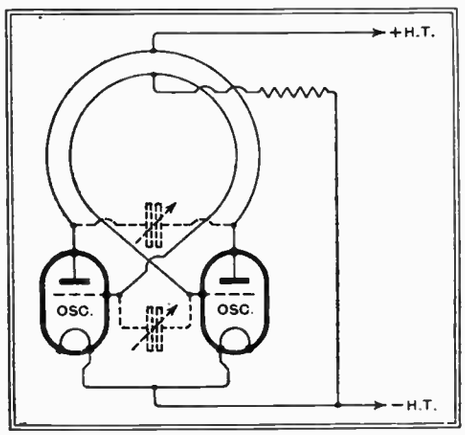
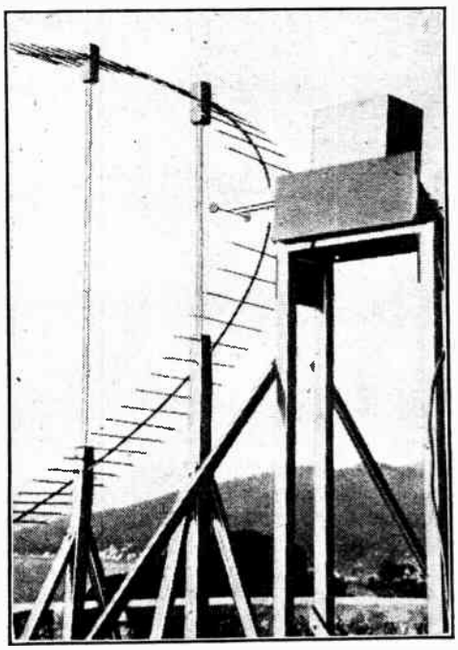


Fig. 5.—The Mesny push-pull oscillator successfully employed for wavelengths down to about three metres.

is small compared with the total amount of inductance in the circuit, the parts of the inductance lying without the L-C circuit acting as chokes and reducing the potentials applied to the valve electrodes. Secondly, we can trace *two coupled circuits* in Fig. 4, one being the L-C circuit, and the other the circuit *via* L—*l*1—C*ga*—*l*2. Under these conditions, when C is reduced below a certain point, it "loses control," and the second of the two circuits, that *via* the inter-electrode capacity (C*ga*) of the valve takes charge, and the generated wavelength suddenly jumps to some value quite unrelated to the setting of the "tuning" condenser C. The combination of these effects sets a limit (round about 4 metres, usually) to the shortness of the wavelength generated by this type of circuit. It had also two further disadvantages. First, if it was shunt fed (Fig. 3 (b)), part of the self-capacity of the H.F. choke used to introduce the anode feed was added to the other effective stray capacities in the circuit, since it was connected at a point of high H.F. potential; if series fed (Fig. 3 (a)), there was the damping effect of the grid leak (generally quite low in ohmic resistance, not more than 20,000 ohms) and the capacity of the grid condenser to earth, the grid condenser, in these very short-wave circuits, being a relatively



A receiver for the quasi-optical wavelength of 50 centimetres recently used by Marchese Marconi.

"bulky" component. Secondly, in either case both sets of vanes of the tuning condenser are at a high H.F. potential relative to earth.

A push-pull circuit

To overcome most of these disadvantages, the "push-pull" circuit shown in Fig. 5 and generally ascribed to R. Mesny was used. Here the valve inter-electrode capacities are effectively in series as regards the tuned circuit, and a high degree of electrical symmetry, which is very desirable, is attained. But the latter objection urged against the Hartley circuit still exists. Also, on account of the fact that only *half* of the tuned circuit is effective as a load in the anode of each valve, the effective anode load decreases much more rapidly with a decrease of wavelength than in the case of the single-valve circuit, though this is partly offset by the smaller effective inter-electrode capacities. The Mesny type of circuit is usually successful down to about 3 metres with ordinary valves. Note that the effective reaction coupling in this case is partly electromagnetic. If the coils are constructed the wrong way round (uncrossed), the two reaction effects (electromagnetic, *via* the coils, and electrostatic, *via* the valve inter-electrode capacities) may cancel out and no oscillations be obtained.

A suitable single-valve circuit, apart from avoiding the necessity of pairs of matched valves, can, if properly designed, be made to operate at shorter wavelengths than the Mesny type of circuit. The forerunner of the most successful type of

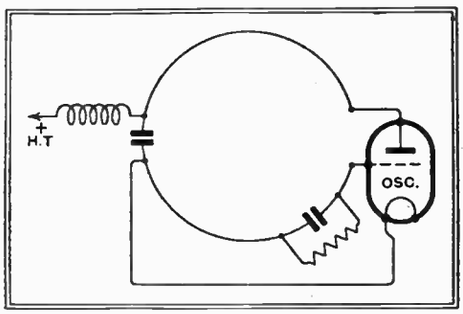


Fig. 6.—An early single-valve short-wave circuit of symmetrical form.

single-valve circuit for this purpose seems to have been devised by Messrs. Gutton and Touly round about the year 1919, and is shown in Fig. 6. One comment upon it is necessary: the mistake was made of having the grid condenser in the position shown, where it is (to use an illuminating expression that the writer once heard) "knocked about at a high-frequency potential above earth." A later version of the circuit is shown in Fig. 7. When we examine it closely we find that it is hard to describe it in terms of conventional valve circuits. The beauty of this arrangement lies in the fact that the external inductances L1, L2 are continuous with the internal leads *l*1, *l*2 (Fig. 7 (a)), the whole tuned circuit being formed by the two inductances L1-*l*1, L2-*l*2 and the two capacities C and C*ga*, forming a "link." If carefully arranged, this circuit is much less likely to show the undesirable coupled circuits effect of the Hartley circuit previously described. Furthermore, there is no limit to the shortness of the external leads (L1, L2) beyond that of the length

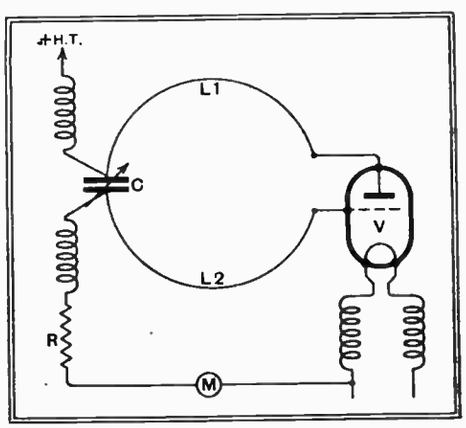


Fig. 7.—A later version of the circuit of Fig. 6.

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necessary for mechanical reasons, to connect C. Moreover, the grid and anode current leads can be led in (as shown *via* chokes) at points of low or zero H.F. potential with regard to earth.

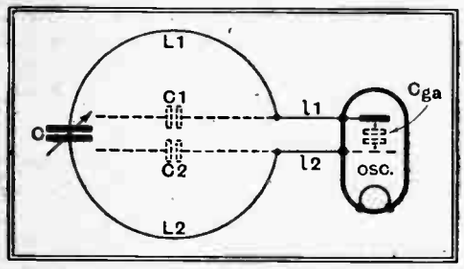

Fig. 7 (a).—The equivalent circuit of Fig. 7 with the self-capacities shown.

Practically, the circuit values for Fig. 7 may be: V=any receiving power or super-power valve, Ra about 2,000-4,000 ohms; L1 and L2, pieces of stout copper wire, bent into semicircles, each piece about 4in. long; C, any good make of air-dielectric *miniature* variable condenser, about 0.0001 mfd., max.; and R, 10,000-20,000 ohms.

The grid and anode chokes may each consist of about fifty turns of fine wire on a former ⅜in. diam. Filament chokes will usually be found necessary and may consist of the same number of turns (fifty) of stouter wire (say, 30 S.W.G., for a valve taking not more than 0.25 amp. filament current) wound in "bifilar" fashion on a former about ¾in. diam.

With the arrangement described, the wavelength obtained will be somewhere in the neighbourhood of 2¼ metres. This circuit has the great advantage that it never refuses to oscillate, provided that the valve is O.K. By "decapping" the valve, cutting the external leads as short

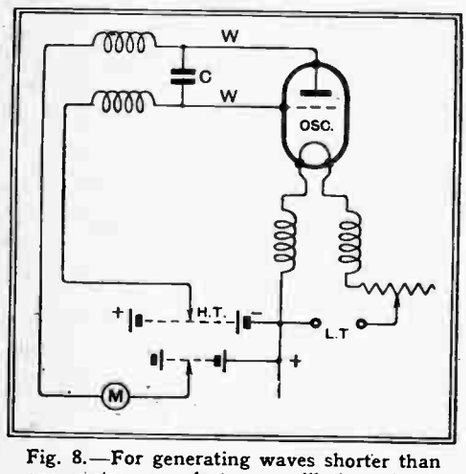

Fig. 8.—For generating waves shorter than one metre, an electron oscillation circuit must be used. Note that positive H.T. is applied to the grid.

as possible, carefully adjusting the value of R (the grid leak), using a selected valve, and applying as much anode voltage as it will stand safely, the generated wavelength (with C at its minimum value consistent with oscillation) may be brought down to the neighbourhood of 1½ metres.

A close inspection of Fig. 7 (a) will show that if the self-capacities between the various parts are considerable (especially in the cases of the leads as shown by C1, C2) and the wavelength short, this circuit approaches the condition of a "tuned plate-tuned grid" circuit, with C as a coupling capacity. This means that in some circumstances the coupled circuit effect previously discussed may appear, but it is not usually troublesome. The only real snag is that, as the value of the tuning condenser C is decreased, there comes a point where the oscillations cease, owing to the fact that this condenser is also acting as a coupling between the grid and anode circuits, and decreasing its value in order to reduce the wavelength also reduces the coupling. The grid-current meter M (suitable value 0-2 mA.) provides a good indication of output, and is very useful for wavelength-measuring purposes in connection with absorption circuits and Lecher wire systems.

When it is desired to generate waves shorter than 1 metre, use must be made, as before mentioned, of an entirely different principle of operation. Strangely enough, and as a matter of interest, the

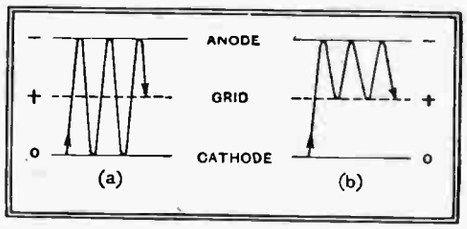

Fig. 9.—The cloud of electrons may "dance" in time with the oscillations either between cathode and anode or grid and anode.

circuit used is mechanically almost identical with the Gutton-Touly type of reaction circuit just described. In fact, the same circuit and valve may (provided conditions are suitable) be used without any (mechanical) change for the production of both types of oscillation. The general arrangement used is shown in Fig. 8. The point to notice is that the positive H.T. potential is applied to the *grid*, and a *negative* potential of lesser value is applied to the plate, which is rather an unconventional arrangement.

The dance of the electrons

The actual way in which this arrangement functions does not seem to have been definitely settled so far, but a plausible explanation which fits the experimental facts is as follows:—

On switching on the circuit, a cloud of electrons starts from the cathode and is attracted strongly towards the grid by the powerful positive potential thereon. Some of them are caught by the grid during their first flight, and take no part in the oscillatory action. Many, however, attain a high velocity and pass through the spaces between the grid wires, travelling towards the plate, where they are repelled by the negative potential thereon. If this latter potential is of the right value, the majority of the electrons just manage to reach within a short distance of its surface before their velocity is reduced to zero, when the positive charge on the grid again affects them and they are finally drawn back to it and absorbed. If the constants of the circuit connected to the electrodes are suitable, this rush of electrons (=a rush of current; in fact, a "transient") impulses the circuit, the return swing of which assists the retarding voltage upon the plate to return the electron cloud towards the grid. During this impulse the second return swing (again in the positive direction with respect to the cathode) helps the positive potential upon the grid to attract a further batch of electrons from the cathode, and may also reattract many of those which had been repelled from the plate back towards it.

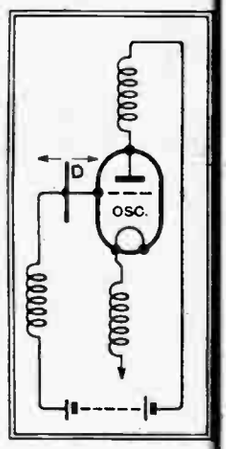

Fig. 10.—A copper disc 20 to 30 cms. diameter, as shown at D arranged as a slider, can be successfully employed in the grid circuit of the electron-oscillation valve.

The net result is that clouds of electrons may "dance" in time with the oscillations in the external circuit either between cathode and plate (Fig. 9 (a)) or between grid and plate (Fig. 9 (b)). In either case the frequency and therefore the wavelength is dependent upon the time of swing of the electrons between the two electrodes in question. This time period is in its turn dependent upon the distance between those electrodes, and inversely proportional to the voltage between them. Since (under the same operating conditions) the distance between the grid and plate is less than that between the cathode and plate, the former method of oscillation gives rise to the shorter waves.

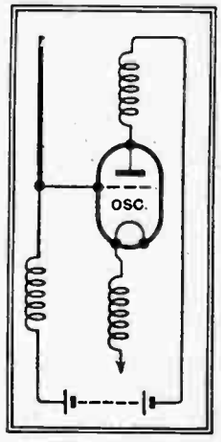

Fig. 11.—Another form of oscillator in which a vertical wire of quarter wavelength is attached to the grid terminal.

The H.F. potentials set up in the external circuit by the oscillating electron clouds may influence, *via* the changes of potential upon the electrodes, the time of swing. The result of this appears to be that in some circumstances the constants of the external circuit can affect the period of swing and therefore the wavelength, whilst in other circumstances this is determined solely by the geometry of the valve and the operating potentials, the constants of the external circuit merely affecting the output, by resonance with the electron oscillations.

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In the former case the type of oscillation is referred to as the "Gill-Morrell," and in the latter case as the "Barkhausen-Kurz," from the names of the two investigators who in each case first demonstrated that particular type of oscillation. It is not easy to predict which type of oscillation will be produced in any particular case, but it may be said that in general a perfectly symmetrically constructed valve and low operating potentials will predispose to Barkhausen-Kurz oscillations, whilst a slightly unsymmetrical valve with high operating potentials will predispose to oscillations of the Gill-Morrell type. Oscillations of both types may co-exist simultaneously.

Referring to the practical side of the question, there is one rather serious drawback to the electron-oscillation method, i.e., it is very hard on the valve, as anyone might surmise who has had any experience of valves using high positive grid potentials. Consequently, only valves of the "bright emitter" type will stand up

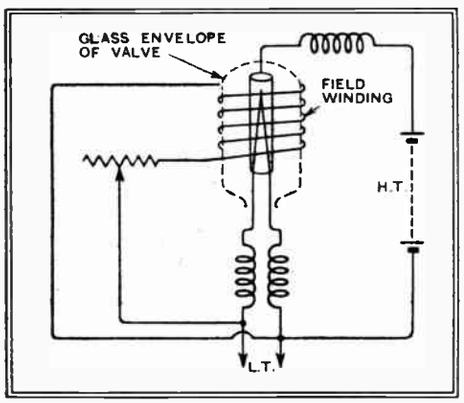
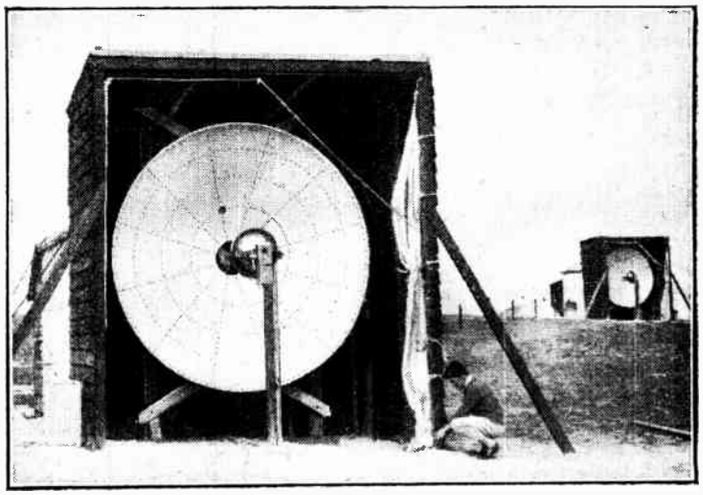


Fig. 12.—A diode with a winding outside the bulb to produce a retarding magnetic field. Five-centimetre waves have been produced by this circuit.

to the work for any length of time. For experimental purposes it is best to choose a small bright-emitter transmitting valve of robust and *symmetrical* construction. Voltages of from +200 to 300 volts may be applied to the grid, and from 0 to minus 100 to the plate. A sudden change in the reading on the plate-current meter (M, Fig. 8) will indicate that oscillation has commenced, when the bridge can be moved along the wires until maximum output is obtained, usually indicated by maximum reading on M. (In some cases of B-K oscillations there may be no indication at all on the meter M, whether the circuit is producing maximum available output or not. In these cases the indication is that the electron clouds are not actually reaching the plate, but are oscillating backwards and forwards about the grid.)

The Lecher wires (W, W, Fig. 8) may conveniently be anything from 50 to 100 cm. in length and about 5 cm. apart. The stopping condenser C may be of any value between 0.0001 and 0.001 mfd. Oscillations of the B-K type do not necessarily produce oscillatory current in the plate circuit, so the plate circuit wire may be omitted, and the bridge wire substituted by a copper disc of 20-30 cm. diameter arranged to slide along it, as shown at D in Fig. 10. This form of the circuit is generally found to be very successful,



Receiver and transmitter used in experimental 18-centimetre wavelength telephony across the Channel on March 31st, 1931.

and was originally devised by Pierret.

Still another form is shown in Fig. 11, in which the wire takes the form of a little vertical (approximately quarter-wave) "aerial" attached to the grid terminal. Oscillations having been obtained by adjustments of the valve electrode voltages, the wire is adjusted in length until maximum output is obtained.

With suitable valves obtainable in this country (A.T.40, A.T.40X, A.T.25, T.15, etc.), the wavelengths obtained will generally be somewhere between 40-80 cm. The filament current will be found somewhat critical for maximum output, and the valve will generally have to be run somewhat over its rated filament voltage. Adjustment of the filament current changes the wavelength slightly, and may be used as a "tuning" control when the circuit is used for reception purposes.

From the fact that the principle of electron-oscillators involves the employment of both an accelerating and a retarding field in what is really a diode with grid anode (since the plate only provides the retarding field), the use of a *magnetic* retarding field has been suggested and successfully tried (Fig. 12). This arrangement was first successfully developed by Okabe, and dubbed by him the "Magnetron." In its essentials it consists of a diode, with a cylindrical anode, a D.C. field winding being arranged on the outside of the bulb so that a magnetic field is produced with its axis parallel with the axis of the anode and cathode. The effect of the field is to deflect the course of the electrons leaving the cathode, so that, instead of proceeding straight to the anode, they describe a spiral with the cathode as centre (Fig. 13). At a certain critical value of the field they just fail to reach the anode, and the action is practically the same as that discussed in connection with B-K and G-M oscillations in the triode. As the value of the field is increased, the anode current decreases, so that the anode voltage can be "pushed" higher. As the strength of the field and the value of the anode voltage is increased, the generated wavelength becomes shorter. Okabe has succeeded by this means in producing 5-cm. waves. An arrangement used some time ago by the writer is shown in Fig. 14. The valve is an old bright-emitter diode rectifier with a short aerial wire, *w*, and a pair of Helmholtz coils, *f*, *f*, providing the retarding field. The usual filament and anode chokes are, of course, employed. The object of using Helmholtz coils is that the field produced at their mutual geometrical centre (the electrode system of the valve) is very uniform; also they are easy to construct and to assemble on the valve. The distance apart of the coils in the axial plane is equal to the radius of the coil (mean values).

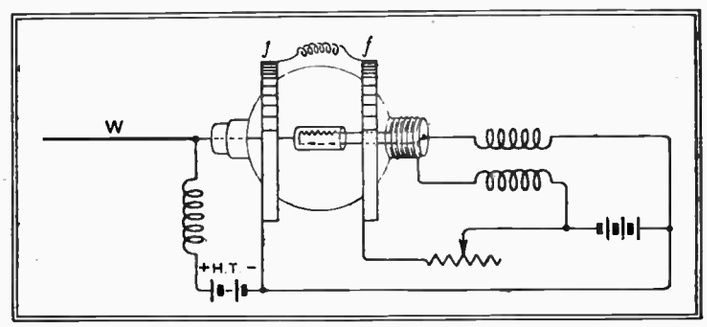


Fig. 14.—The author's "Magnetron" arrangement with which wavelengths of from 30 to 60 cms. are obtainable.

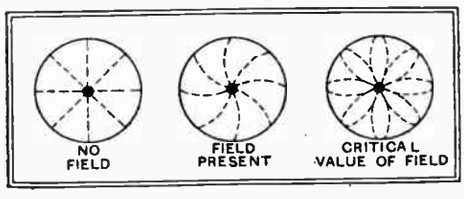


Fig. 13.—Electron formation in the "Magnetron" oscillator.

The waves produced by the magnetron arrangement are of the B-K type—that is, they are not affected except as regards intensity by the constants of the external circuit. With the arrangement just described, wavelengths of 30-60 cm. are obtainable, with anode voltages up to 300.

UNBIASED

By

FREE GRID

Grace the hotel with my presence.

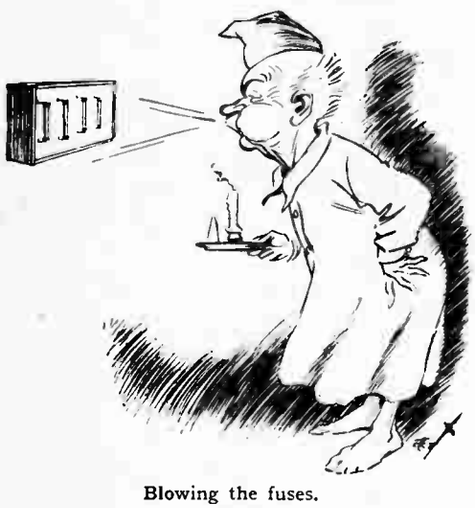
Pyjama Switches

I HAVE been singularly astonished at the pæans of praise which the lay Press have indulged in lately concerning "a remarkable new radio invention."

By means of this invention you can, to quote the words of one writer, "actually listen in bed to the last item of your favourite dance music and then switch off and go to sleep without the necessity of going downstairs in your bare feet to turn off the switch in the room in which your all-mains set is placed."

Now, even supposing that remote control switches had never been invented, it would be possible to switch off without leaving the warm comfort of your bed, simply by reaching to the end of it for your trousers, extracting a sixpence from the pockets thereof, and inserting the coin into the socket of your bedside reading lamp after removing the bulb. This would, of course, blow the household fuses, thus turning off the set.

I once passed this tip on to a friend, who, on our next meeting, complained bitterly of its ineffectiveness; but cross-examination revealed the fact that he was so unmechanically or, rather, unelectrically minded, that, lacking a sixpence, he had used a ten-shilling note.



Blowing the fuses.

But we digress: what I intended to remark was that this ignorant heralding of a remote control switch as a new invention must be particularly galling to the manufacturers who produced these devices as far back as 1925 or thereabouts. It must be still more galling to those who have gone a step farther and produced receivers with complete remote control of tuning.

As I have remarked before, it is high time that each newspaper was compelled by law to appoint a scientific censor to its staff.

Just Sit Back and Listen

I REALLY must protest against the wilful exaggerations to be found in the propaganda issued by certain short-wave addicts in their efforts to induce the ordinary listener to join their ranks.

Judging by his remarks in a very well-known weekly review, it is evident that one of these people, in his desire to induce others to join in his nocturnal pursuits has, to say the least, lost his sense of proportion.

According to this zealot, it is only necessary to listen on a humble two-valve, short-wave set to hear "the eerie call of the laughing jackass from the Australian backwoods, the roaring of lions in Kenya," and, finally, "the voices of telephone operators in New Zealand chatting with their colleagues in London." This, mark you, at any time of the day or night!

In my opinion, such wild statements do more even than the Empire programmes to deter people from short-wave listening.

Not What He Meant?

A WELL-KNOWN journalist, whose writings range from radio to rabbit breeding, has been telling the world that when staying recently in a famous hotel he was entertained by a broadcast programme *via* "wired wireless."

My first thought after reading this statement was that it was strange that such an important technical development as the establishment of "wired wireless" to relay broadcasting could have taken place without my knowing of it. Accordingly, I seized the telephone in an endeavour to get into touch with the mighty journalist. I was, however, held up by his secretary, who, judging from her cold demeanour, would have qualified with honours as a stamp-seller at an Arctic post office. No threats or cajolings on my part could induce her to put me through to the great man in question, so I gave up the quest and did what I ought to have done in the first place, namely, thought again.

It then became obvious to me that, despite what the journalist had written, he had not been listening to "wired wireless." Either he meant that every room in the hotel had been wired up to a central receiver, or that the hotel had become a subscriber to one of the numerous relay services that now exist.

"Wired wireless," of course, consists of the transmission of a number of different telephone conversations—or broadcasting programmes, for that matter—over one land line, interference being obviated by the fact that, to put it very loosely, the various conversations are electrically tuned, and thus pass over the line at different frequencies.

I am so confident of the absence of this system in this country that if any hotel over here is receiving, or distributing, any broadcast programmes by means of "wired wireless," I will undertake to grace it with my presence for one night without making any charge.

Spots Before the Eyes

IT seems that I was guilty the other week of underrating the progressiveness of the talkies. Not only has a list been sent to me of well over a hundred cinemas in all parts of the country where headphones and volume controls are provided for the use of deaf and other people, but a striking instance has been brought to my notice of even more astonishing managerial enterprise.

I owe my experience to a correspondent who is in cinema management himself.

He bade me go along to his "speak-easy" on boat race afternoon, and, having nothing better to do, I followed his advice. I arrived rather too soon, and was forced to endure the long drawn-out agony of a "burning love drama."

When it at length fizzled out I was agreeably surprised to see on the screen a pictorial map of the boat race course, and to hear the preliminary remarks of the B.B.C. commentator. It was quite evident that a radio receiver had been hooked up to the main talkie amplifier.

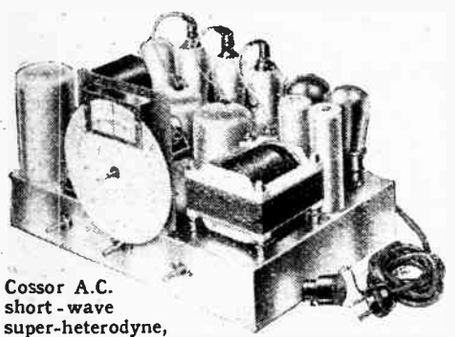
At the beginning of the race two moving spots of light shot off from the starting post, indicating the positions of the boats. I should very much like to know how the thing was done. The map was quite obviously a lantern slide, and I can only conclude that the moving spots of light came from two auxiliary projectors—glorified flashlights, in fact—wielded by operators behind the screen. I trust that something similar will be arranged for the Derby.

Short-wave Sets and Components

Review of Apparatus Available To-day

THE potentiality of the short waves as a medium for broadcast is just now attracting considerable attention in this country, evidence of which is to be found in the number of new receivers, adaptors, and components that have made their appearance during the past few months. Much of the apparatus has been developed especially for use overseas, and in particular for reception of the new Empire short-wave stations recently put into service by the British Broadcasting Corporation.

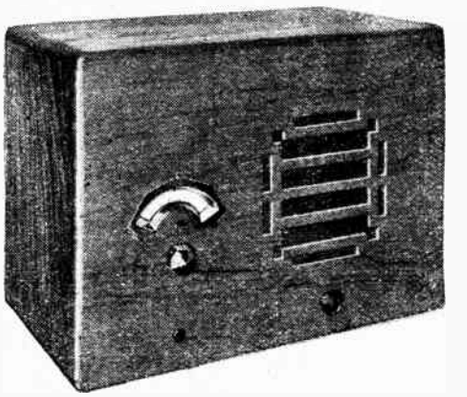
This, however, does not constitute the sole line of development, for the honours are fairly equally divided between what may be termed the "Overseas" model and "All-wave receivers." The latter are essentially broadcast sets suitable in every respect for use in this country; indeed, many represent the very latest types, possessing a very high degree of selectivity, being above the average in sensitivity and, with few exceptions, include moving-coil loud speakers. The addition of a short-wave range is not subsidiary to the main design, neither is it in the nature of a compromise to justify the description "All-wave receiver." For the performance on the short waves should be in no way inferior to that on either the medium- or the long-wave band, since the receiver as a whole has been designed to give a satisfactory performance throughout the full range of wavelengths covered.



Cossor A.C. short-wave super-heterodyne, Model 359.

Having so many alternative programmes from which to choose, listeners in this country are often inclined to ignore the short waves, and, while it must be admitted that these may not provide quite so reliable a service as either the medium or the long waves, they yet possess a definite entertainment value, for it is only on the short waves that distant reception in its truest sense is possible. Furthermore, expensive or elaborate apparatus is not essential, as anyone possessing a passably good broadcast set can adapt it for short-wave use by the addition of an inexpensive unit.

The requirements of the overseas listener differ in many respects from his *confrère* at home, for it is usually quite unnecessary to make provision for long-wave reception, and in most cases a receiver capable of covering the short- and the medium-wave bands will suffice. If the set is to be used up-country, batteries may have to be relied on to supply the operating voltages, so that economy in H.T. current is of first importance. Manufacturers of receivers intended for use overseas fully appreciate this fact, and, although the specification has not been skimped on this account, the total high-tension consumption is kept within reasonable bounds. Yet the receivers are essentially of the long-range type. Superheterodynes predominate, and there are about an equal number of battery and mains models. In this class the majority embody moving-coil loud speakers, permanent-magnet types being used in the battery sets, and energised models in the A.C. superheterodynes.



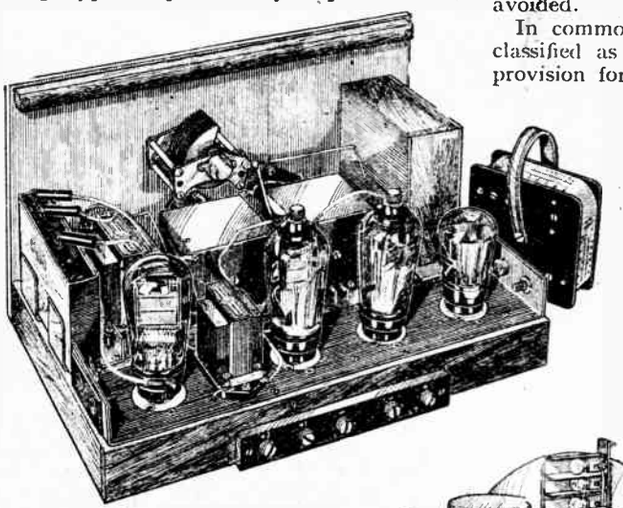
Mavox six-valve short-wave superheterodyne.

Two typical examples of overseas receivers, both of which are superheterodynes, are found in the Cossor range. Economy in operation, in the case of the battery model, is achieved by employing the fewest valves possible, and four only are used. This is made possible by utilising the autodyne frequency changer circuit and a pentode for the output valve, the two remaining valves functioning as I.F. amplifier and second detector respectively. Particular care has been exercised in the choice of the components, and materials that would prove unsuitable in the tropics have been carefully avoided.

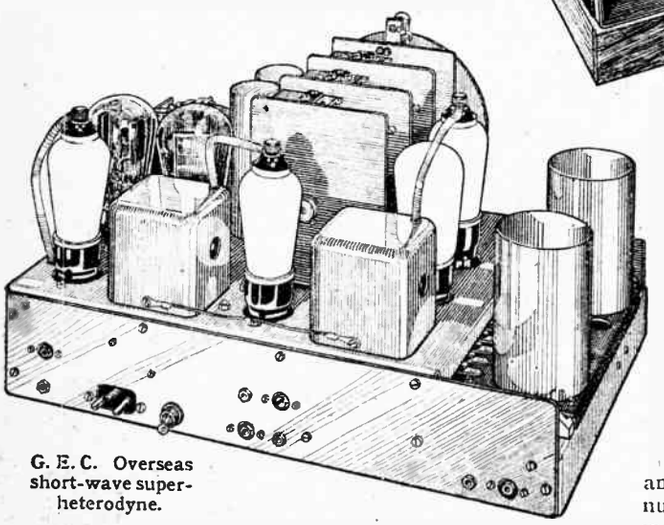
In common with all the other receivers classified as Oversea models, there is no provision for long-wave reception, and the wavebands covered are from 3.5 to 70 metres and 200 to 550 metres, approximately.

Although a moving-coil loud speaker is embodied, provision is made to use headphones if necessary, a feature that is found in quite a number of receivers in this category. For, should the voltage of the H.T. battery fall below that necessary to give loud-speaker reproduction, reception can be carried on with headphones until such time as a replacement is obtained.

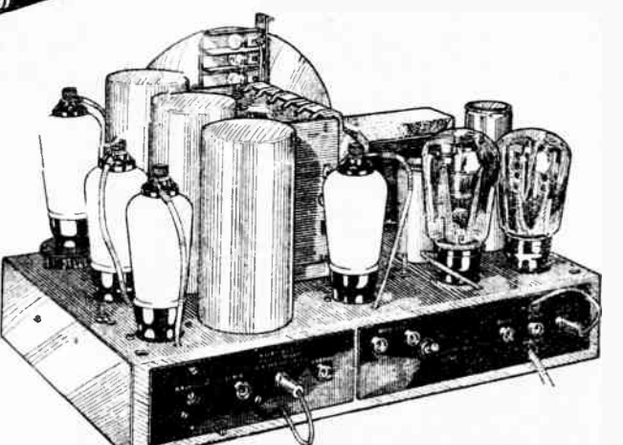
Economy is achieved in some designs by embodying either the Class B output stage or using Q.P.P. amplification, since in both systems the drain on the H.T. battery bears some relation to the acoustic output from



McMichael Colonial battery superheterodyne



G. E. C. Overseas short-wave superheterodyne.



Faraday all-wave superheterodyne.

NEWS *of the* WEEK

Current Events in Brief Review

Why the Sets Howled

COPENHAGEN recently relayed five simultaneous baptisms. It is stated that the infants all provided very strong signals.

5½ Million

THE total number of British wireless licences in force at the end of March was 5,498,700, a net increase of 71,000 over the February total.

Next One, Please

OUR contemporary, the *Shields Daily News*, reports a radio coincidence. A Wigan man entered a relative's house the other day as the loud speaker roared, "Hallo, who's this coming in?" and, as he crossed the threshold, the next words on the wireless were, "How are you, Mr. ——?" (mentioning the man's name).

Luxembourg for All

TWO Diesel engines of 790 h.p. each are providing the Luxembourg 200 kW. station with the necessary power to swamp its neighbours on the long wave. The authorities claim that the station has an "agreeable" radius, or service area, of about 1,130 miles, so that it can serve 380 millions of Europe's inhabitants.

So as to please everybody, the station is transmitting talks in five languages: English on Sundays, Italian on Mondays, French on Tuesdays and Saturdays, German on Wednesdays and Thursdays, and Dutch on Fridays.

No Talk on Police Wavelengths

IN future all London's police patrol cars are to be equipped with short-wave wireless. This decision is the outcome of successful tests with transmitters erected at Tottenham and Kew.

To prevent interference with broadcast reception, which was noticed during the preliminary tests, police communications are to be restricted to the Morse code. This means that Londoners will be denied the opportunity of eavesdropping on gangster chases which is such an exhilarating and popular pastime in America.

No Quarter for Pirates

"PERSISTENT and pernicious piracy" by amateur transmitters is to be attacked by the Radio Society of Great Britain. At a "Conventionette" of No. 1 District of the Society at the Angle Hotel, Liverpool, recently, Mr. John Clarricoats, the general secretary, complained that there were actually members of their Society operating unlicensed transmitters. Cases of "persistent and pernicious piracy," particularly when another man's call was being pirated, should be reported to headquarters.

Members of the Conventionette paid a visit to the Post Office radio station at Seaforth.

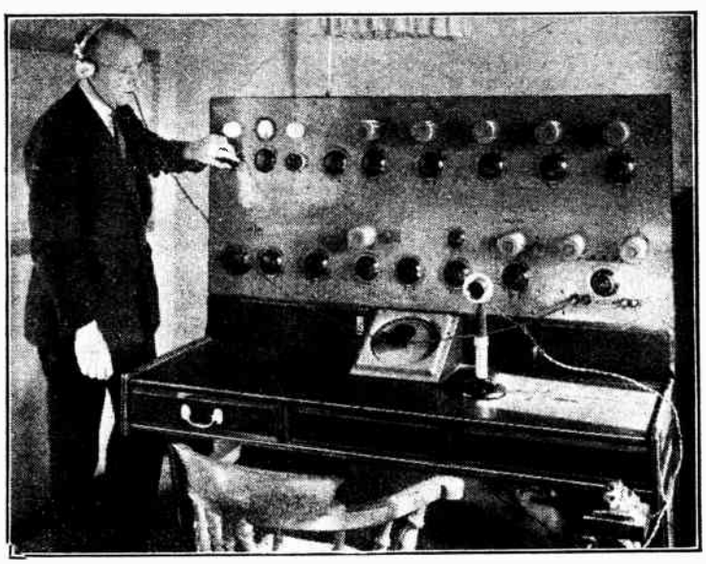
Broadcasting Parliament

THE Spanish Government is reported to have authorised the installation in the Madrid Parliament of microphones for the purpose of amplification *and broadcasting*.

Blimps to Overcome Fading

WILL the day come when every radio research station has its "blimp"? The answer may be in the affirmative if the radio engineers of the Westinghouse Company at East Pittsburgh secure good results with the new miniature balloon which is moored high above the transmission plant of station KDKA. This "blimp" trails a long aerial, some 1,500ft. above the station. The actual aerial is 500ft. in length and is connected to the transmitter by a feeder line.

The object of the tests is to extend the range of broadcasting stations without increasing the power and to attempt to discover a transmitting level at which fading may be at a minimum.



AIRCRAFT GUIDANCE BY DAY OR NIGHT. The new Marconi-Adcock anti-night-effect direction finder at Pulham Aerodrome, Norfolk. Pulham takes bearings of aircraft in flight in conjunction with Croydon and Lympne. Note the telephone and Morse key (on right) for communicating bearings to Croydon.

N.Z. Still Waiting

NEW ZEALAND radio wholesalers are making strenuous efforts to induce British factors to take a more active interest in the receiver market, and, according to a Wellington correspondent, there are high hopes of an improvement this year.

At present Britain is sending New Zealand only one-sixth of her imports of components. The value of wireless apparatus coming into New Zealand from the United Kingdom in 1932 was £24,418. The United States contributed apparatus to the value of £79,012.

Delicious—for the Trade

A FRENCH radio journalist, possibly with an eye towards an approving wireless trade, has been recommending the simultaneous use of two receivers. He describes the effect as "surprisingly delicious," presumably owing to the stereoscopic effect so produced.

Toulouse Keeps Flag Flying

WHILE Radio Toulouse remains *hors de combat*, the programmes are being transmitted from the little station at Agen on 453.2 metres. Unfortunately, the power is only a quarter of a kilowatt, but listeners who recall the uncanny results which Toulouse has hitherto secured with only 8 kilowatts will expect Radio Agen to prove itself as good as any three other stations of the same power.

Meanwhile, we would add our plea to those of many listeners who feel that the French Post Office would perform a graceful act in granting the necessary permit for transmissions from the new 60 kilowatt transmitter of Radio Toulouse at St. Agnan.

A Day in Nankin

PROBABLY in the programmes of few stations are the old and new blended so remarkably as at Nankin. According to a correspondent, the morning begins with a course of physical culture, followed by European gramophone music, interlarded with general news and sporting items. At noon the programme changes abruptly. ancient prayers and music, dating from the earliest days of Confucianism, are broadcast. Highly intellectual programmes fill the rest of the day. They include courses in hygiene and medicine, English and German lessons, and talks on art.

"Yes, You're Winning!"

SHORT-WAVE wireless transmitters on racing motor cars may soon be regular practice. We understand that a racing car is now nearing completion in which wireless equipment will be installed to enable the driver to communicate with the mechanics in the fueling pit, giving instructions and receiving information regarding position in the race, speed of rivals, etc., etc.

Here is a fine new field for the fiction writer who can exploit the racing crook in his efforts to jam the cross-talk between his rival and the pit staff.

"B.B.C." for France

FRENCH listeners will shortly be able to criticise the broadcast programmes with that hearty air of proprietorship which is only possible when listeners pay for what they get. The Chamber has adopted an article of the Finance Bill establishing a scale of taxation as follows: Crystal sets, 15 francs; privately owned valve sets, 50 francs; valve sets used in public, 100 francs; used in public for gain, 200 francs. All valves are taxed at 15 per cent. of the sale price.

M. Laurant-Eynac, the Postmaster-General, said, in introducing the measure, that the State stations would, under the new regime, refuse all sponsored publicity programmes, the State regarding it as its primary duty to satisfy the public.

The Late Mr. Kellaway

THE death of the Rt. Hon. F. G. Kellaway, P.C., on Thursday, April 13th, has robbed wireless of a prominent figure. At the time of his death Mr. Kellaway was vice-chairman and managing director of Marconi's Wireless Telegraph Co., Ltd., chairman and managing director of the Marconi International Marine Communication Co., Ltd., and joint managing director of Imperial and International Communications, Ltd. To many listeners, however, Mr. Kellaway will best be remembered as the Postmaster-General who, in 1922, played a prominent part in founding agreements for the formation of the British Broadcasting Company, now the British Broadcasting Corporation. He could also claim the honour of producing for the first time a post-War surplus of income over working costs in the British Post Office administration.

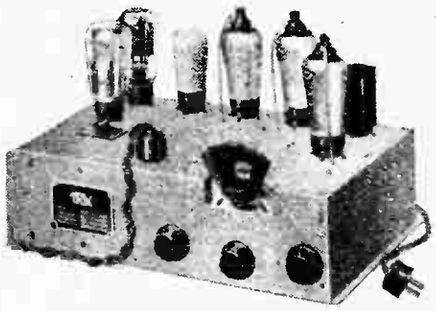
Mr. Kellaway was sixty-two years of age.

The Droitwich Masts

THE British Broadcasting Corporation has entrusted to Radio Communication Company, Ltd., of 34-35, Norfolk Street, Strand, W.C.2, a contract for the supply and erection of two 700ft. lattice steel masts at the Midland Regional Station, near Droitwich, similar in design to the 500ft. masts recently built by the same company for the North Regional, Scottish Regional and West Regional Stations.

Short-wave Sets and Components—

the loud speaker. One example of the first-mentioned practice is the Scott Sessions Equator-Super, a six-valve superheterodyne of the Overseas type covering 12 to 80 metres and 220 to 550 metres. A permanent-magnet moving-coil loud speaker is included, and in addition there is automatic volume control. Automatic volume control should



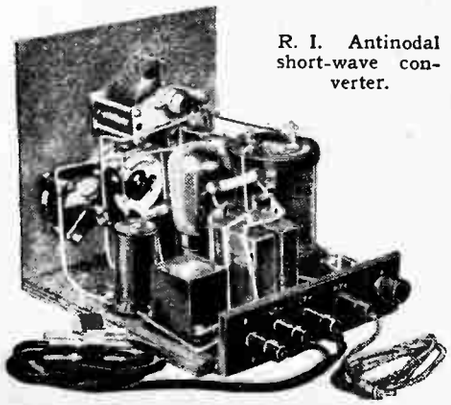
Clean lines distinguish the Trix Explora short-wave superheterodyne.

prove a very useful feature in a short-wave receiver, since fading is often more prevalent on the short waves. One other feature which distinguishes this particular receiver is the inclusion of a Westinghouse metal-oxide detector following the intermediate frequency amplifier.

Showing back view of Lissen Ultra short-wave Transportable Three.

Class B amplification figures also in the latest seven-valve battery superheterodyne, model S.710, developed by Faraday All-Wave Wireless, Ltd., whilst a Q.P.P. output stage is embodied in the six-valve model (B.65) made by Mavox Radio, Ltd.

Superheterodyne receivers for overseas use



R. I. Antinodal short-wave converter.

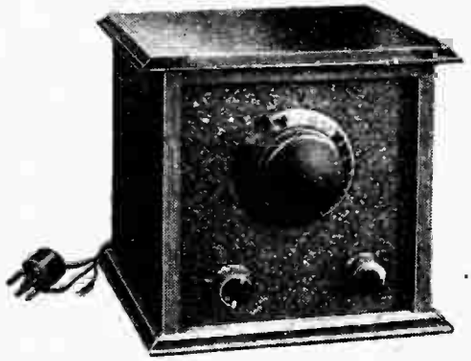
are made by G.E.C., who have a six-valve model, battery operated, and an overseas A.C. six-valve superheterodyne. Both receivers are of the limited waveband type, in that they do not include a long-wave range. The loud speaker is not included in the design. The McMichael Colonial set takes

Kolster Brandes Model K.B.286 all-wave A.C. superheterodyne.

the form of a four-valve superheterodyne designed especially for short-wave use, but provision is made to cover the medium broadcast band. A neat interchangeable coil box is employed in this set. Eric J. Lever (Trix), Ltd., are responsible for a compact six-valve super for use on A.C. supplies. The metal work in the chassis is specially treated, and the components employed are of the type developed for tropical use.

Ultra-short Waves

Although superheterodynes predominate, a number of firms have made a speciality of the straight type of set. Prominent among these is Stratton and Co., Ltd., makers of the well-known Eddystone receivers. Although designed especially for short-wave reception, it is possible to extend the range of the majority of these sets to cover the medium-wave band, and in one particular



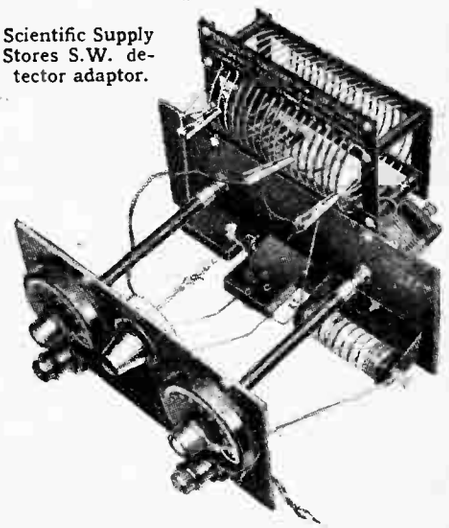
Eelex superheterodyne S.W. converter.

model, the All-Wave Four, coils for the long waves are available. The products of this firm are of particular interest to the amateur experimenter, for a special feature is made of ultra-short-wave equipment, and one receiver for use on the 5-metre waveband has been developed.

The all-wave receiver covering the short, medium, and the long waves offers the greater attraction to the average listener in this country, since the ability to receive normal broadcast is possibly of paramount importance. Thus the main feature one looks for in a set of this type is a good all-round performance on the medium- and long-wave bands, since if the set is satisfactory in this respect it may be assumed that on the short waves it will not be lacking. The largest selection is found in the mains-operated class, and such firms as Faraday All-Wave Wireless, Kolster Brandes, Mavox Radio, Pegasus and Standard Telephones include sets of this type in their range.

If the reader already possesses a satisfactory broadcast set and is reluctant to incur unnecessary expense, the acquisition of a short-wave adaptor is well worth considering. These units are made in two styles; the one converts the set into a short-wave superheterodyne, and requires that one or more H.F. stages be available, whilst the

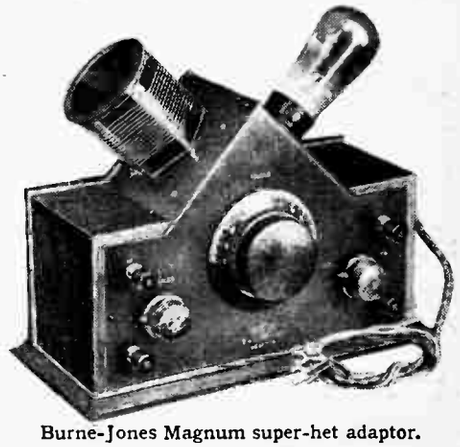
Scientific Supply Stores S.W. detector adaptor.



other is intended for use in conjunction with receivers not fitted with an H.F. stage. The detector adaptor, as the last-mentioned unit is termed, is provided with a lead and plug for inserting into the detector valve holder, and so makes use only of the low-frequency amplifying part of the broadcast set. These units are easy to install, simple to operate, and can be put out of action in a few minutes. Exceptionally good results are obtained on the short waves with either type, but in general the superheterodyne model will show the greater sensitivity, in view of the higher amplification afforded.

S.W. Adaptors

In one particular design, namely, the R.I. Antinodal short-wave converter, it is arranged to utilise the idle detector valve as an additional low-frequency amplifying stage a useful feature in view of the fact



Burne-Jones Magnum super-het adaptor.

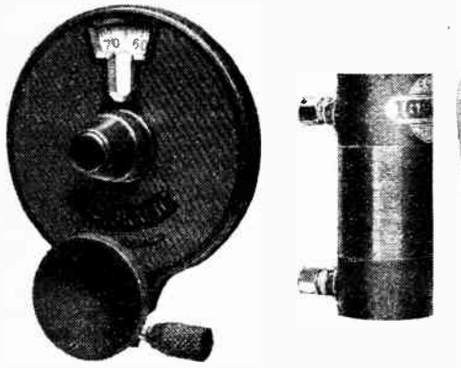
Short-wave Sets and Components—

that many present-day broadcast sets are fitted with one L.F. amplifying stage only after the detector. The R.I. converter is not a superheterodyne model.

Short-wave adaptors are now obtainable

Selection of Wearite short-wave components.

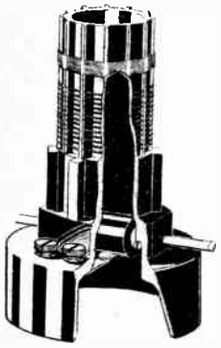
for use in conjunction with either battery or mains sets, and are made by Burne-Jones and Co., Ltd., J. J. Eastick and Sons (Eelex), Scientific Supply Stores, Haynes Radio, and Stratton and Co., Ltd.



Igranic Indigraph dial with two-speed reduction drive, H.F. choke and S.W. coil.

Components

So far as special parts are concerned, in a short-wave receiver it is only those components comprising the tuned circuits that need be of special design. Or, to be more precise, coils, variable condensers, and H.F. chokes are the principal items affected. Variable condensers for short-wave receivers must of necessity have a low minimum capacity, whilst the maximum value should not be more than about half the usual value employed for normal broadcast receivers; otherwise, tuning becomes far too critical. Particular attention is called for in the design of the condenser bearings, for these can be a very prevalent cause of crackle and noise if badly designed or made of unsuitable materials. All these points have received due attention by designers of these components, and the features enumerated above are to be found in the products of the leading manufacturers, such as Wingrove and Rogers (Polar), Jackson Bros., Stratton (Eddystone), S. Bird (Cyldon), Ormond, and F. E. Godfrey.



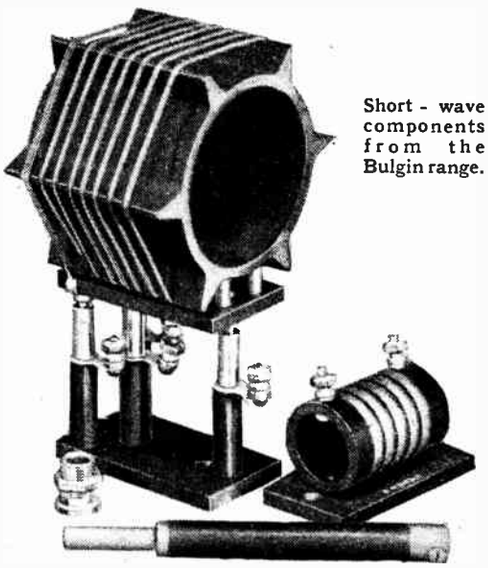
Colvern type K.S.W. dual-range short-wave coil.

The design of a short-wave coil, especially if it be of the dual-range type, presents another problem that has been satisfactorily surmounted, and some exceptionally efficient and compact coils are now made by Colvern, Lissen, R. I. Wright and Wearie, and Eelex. In addition, there is a big selection of single-range coils, mostly of the plug-in variety, the principal firms listing these being Igranic, Stratton, H. Clarke and Co. (Manchester), Ltd., Bulgin, and Lewcos.

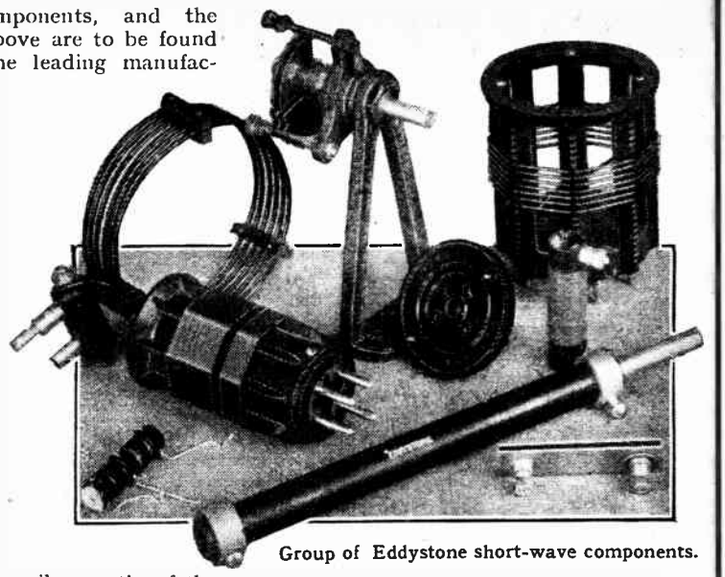
High frequency chokes for use on short-waves present a very interesting problem for unless certain precautions are observed the wave-range over which the choke is effective may be curtailed. Self-capacity of the winding is the most serious factor encountered, and various and many ingenious designs have appeared from time to time, the aim in all cases being to achieve the highest inductance possible compatible with the requirements of short-wave work, coupled with a very low self capacity.

A straightforward single layer winding, or a sectionalised winding seem now to be most popular types of construction, examples of the former being the Igranic, Postlethwaite and Eddystone, whilst sectional-wound H.F. chokes are favoured by Ward and Goldstone, Wright and Weaire, and Bulgin.

Since in the ultra-short wave field only the amateur experimenter finds an interest

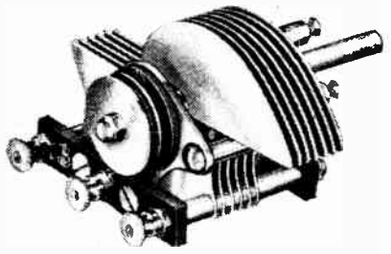


Short-wave components from the Bulgin range.



Group of Eddystone short-wave components.

it is but natural that the demands for components suitable for use on these very high frequencies are few in number. Indeed, the manufacture of these is practically in the hands of one firm, namely, Stratton and Co., Ltd. They take the form of miniature variable condensers of 15 and 25 micro-micro-

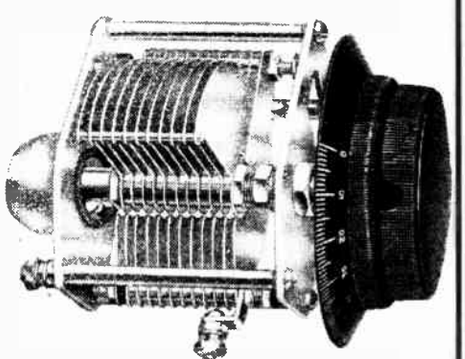


J. B. short-wave special condenser.

farads, small H.F. chokes with an effective range of from five to ten metres, coils and a few other items.

The Peto-Scott Co. have for long specialised in kits of parts for the home constructor, and they have a very wide range of short-wave models, many of which can be supplied as finished sets.

A wavemeter which can be relied on to give an accurate indication of the frequency to which the set is tuned should prove an



Polar type "C" short-wave condenser.

exceedingly useful adjunct, since it obviates much tedious searching when tuning in short-wave transmissions. Apparatus of this type is obtainable from Claude Lyons, Ltd., and also from Stratton. For general-purpose use, an exceedingly high degree of accuracy is not necessary, and the G.R. type 358 obtainable from Claude Lyons will satisfy most requirements. It has a range of 15 to 220 metres, and an accuracy of 1 per cent

BROADCAST BREVITIES

By Our Special Correspondent

Sunday Evenings: The Truth

LONG-DISTANCE listeners need not get alarmed over the rumours that their Sabbath evening quiet from six to eight o'clock is to be filched from them for the sake of less ambitious people who cannot support existence unless the local station is transmitting.

I can definitely say that while Sir John Reith wields power at Broadcasting House there will be no trespass on the holy ground set apart by arrangement with the Religious Advisory Committee.

More Week-day Broadcasting?

It is true that the question has been discussed, but the decision arrived at is bringing no comfort to those who would have things other than they are.

More may come, however, of the interesting suggestion that the daily broadcasting hours should be extended.

Wasted Talent

It is argued that studios are being used almost throughout the day for one Empire zone or another; why should all this talent, whether full-blooded or Blattnerphoned, be wasted so far as Great Britain is concerned?

So do not be surprised if one of these days we hear the triumphant announcement that morning listeners are to have alternative programmes.

Television Shows Not Wanted

A WORD of thanks to the surprisingly small number of readers who responded to my invitation for support in a plea for television demonstrations in the Concert Hall at Broadcasting House. Unless readers are bashful in the matter, I can only conclude that television, despite great technical improvements, has failed so far to stimulate the public imagination.

Dancing to a Symphonic Poem

HENRY HALL and his band will set listeners a queer problem on May 30th when they broadcast "Rhythm of the East"—a *symphonic poem for dance orchestra* by Clifford Hellier, whose brother, Cyril Hellier, is principal violin in the orchestra.

To dance or not to dance?—that is the question. Mr. Hellier's composition is based upon impressions gathered during a trip to Algeria, and as can be imagined, it abounds in tambourin, tom-tom, and other effects, including those of a melée in a café. Listeners, therefore, will begin dancing at their own risk.

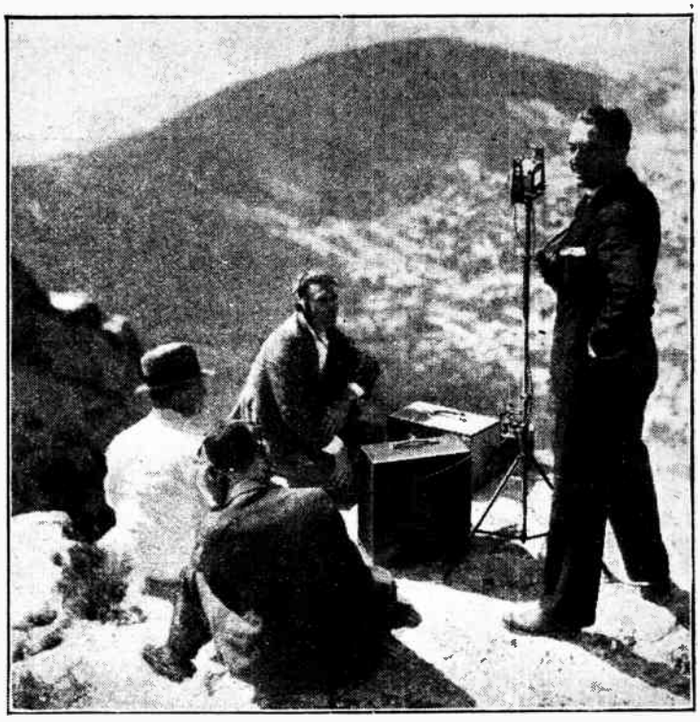
Cup Final Broadcast To-morrow

A RUNNING COMMENTARY by George F. Allison on the Cup Final between Everton and Manchester City will be broadcast from the Empire Stadium, Wembley, to National listeners to-morrow (Saturday). Mr. Allison's description will be preceded by community singing, conducted by Mr. T. P. Ratcliff, accompanied by the band of the Royal Horse Guards.

Listening Groups and Bad Reception

"CHARACTERISTIC of England is the large band of devoted men and women willing to sacrifice an evening a week for many weeks in order to act as leaders of Listening Groups." I cull this remark from a highly informative and unbiased account of the Adult Education Wireless Groups contained in the Board of Education Pamphlet No. 92 (H.M. Stationery Office, price 9d.

In all, sixty-five groups were visited, and in forty-six cases the reception was reasonably good; in two cases it was so bad that the talk could not be followed. In other cases, while it was possible to follow the talk there was a background of interference. Interference was most noticeable in the North West and in Yorkshire.



A GOOD STUNT. The element of novelty and surprise must never be lost sight of in planning broadcast programmes. South Africa set a good example a few weeks ago when Cape Town broadcast a description of Table Mountain. The announcer is seen at the summit with his equipment. The talk was relayed by the B.B.C.

Music Circles, Too?

The wireless groups have been found most useful by people who lack the opportunity to listen in quietness and comfort at home.

Many music lovers are faced with the same problem, and I imagine they would welcome the advent of B.B.C. Music Appreciation Circles organised on the same lines as the listening groups.

Grand Opera Broadcast in Full

MONDAY NEXT will be a red-letter day for all opera lovers, for it sees the opening of the Grand Opera season at Covent Garden, and the B.B.C. relay of the third act of "Der Rosenkavalier" to National listeners. On Tuesday, May 2nd, Regional listeners will hear the whole of "Rheingold," one of the very few operas to be broadcast complete.

Relays of grand opera are to take place frequently on both wavelengths during the season.

Don't Miss the Academy Banquet

FEW post-prandial speeches are so polished and witty as those delivered at the Royal Academy banquet, and even listeners who are sometimes inclined to tune out "dinner talks" ought not to miss the broadcast from Burlington House on the London Regional wavelength to-morrow (Saturday). Sir William Llewellyn, president of the Royal Academy, will be in the chair, and the following toasts will be given:—The King, the Queen, the Prince of Wales and the other members of the Royal Family, the Armed Forces of the Crown, His Majesty's Ministers, Science, the Guests, and the Royal Academy of Arts.

Volume Control in the Garden

A SUPERFICIAL onlooker might consider that the B.B.C. was doing itself a disservice by asking listeners to reduce the volume of their loud speakers when used in the garden in the summer months. "Let the joyful sounds be shouted from the housetops" might seem to be the best motto, but, fortunately, the Corporation looks a little further into the matter and realises that the noisy loud speaker brings broadcasting into disrepute.

I understand that tactful suggestions for toning down the volume will be broadcast at intervals throughout the hot season.

Eighteen Hours of Drama in Sixty Minutes

THREE Japanese "No" plays, each supposed to last for six hours, are to be broadcast on May 4th (National) and 6th (Regional). But whereas Ujinobu, the playwright, who lived from 1414 to 1499 A.D., intended that "Kumasaka" should last from early lunch to late tea, Mr. Howard Rose, the B.B.C. producer, has stepped in and cut it down to something like twenty minutes. With two other similar plays—"Aya No Tsuzimi" and "Kagekiyo"—the whole entertainment will occupy rather less than one hour.

This is compression with a vengeance, and one could wish that all B.B.C. producers were as vigorous with the blue pencil. These strange old dramas should be worth listening to.

How Now, Mr. Ashbridge?

HERE is news which is more flattering to Les Allen, Henry Hall's vocalist, than to the Empire broadcasting system. I hear that Mr. Allen's parents are now travelling from Toronto to this country to hear their son sing. They decided to come after many months of fruitless endeavour to hear their son's voice "on the air."

READERS' PROBLEMS

THESE columns are reserved for the publication of matter of general interest arising out of problems submitted by our readers. Readers requiring an individual reply to their technical questions by post are referred to "The Wireless World" Information Bureau, of which brief particulars, with the fee charged, are to be found at the foot of this page.

"Class B" Conversions

MOST of the questions submitted to us regarding the conversion of existing sets for "Class B" amplification relate to H.F.-det.-L.F. receivers, in which the output valve is fed directly from the detector, usually through a step-up transformer.

When dealing with such receivers, especially if they are fitted with a small three-electrode power valve, the most convenient plan will be to convert the existing output valve into the driver. Following this plan, the main extra components required will be the special driver transformer, the "Class B" valve, and, a transformer designed for matching this valve to the loud speaker. Alternatively, the existing loud speaker, with its transformer, may be matched by interposing one of the new tapped chokes which have been specially devised for the purpose.

In order to prevent undue emphasis of high notes, a compensating device must be fitted. This might consist of the conventional resistance and condenser across the primary of the output transformer, but, for reasons that have already been explained, it is better to connect it before the driver stage. This may be done by shunting the primary of the existing L.F. transformer with a condenser and resistance (the latter preferably being variable) in the manner shown in Fig. 1. The values shown in this diagram will generally be satisfactory.

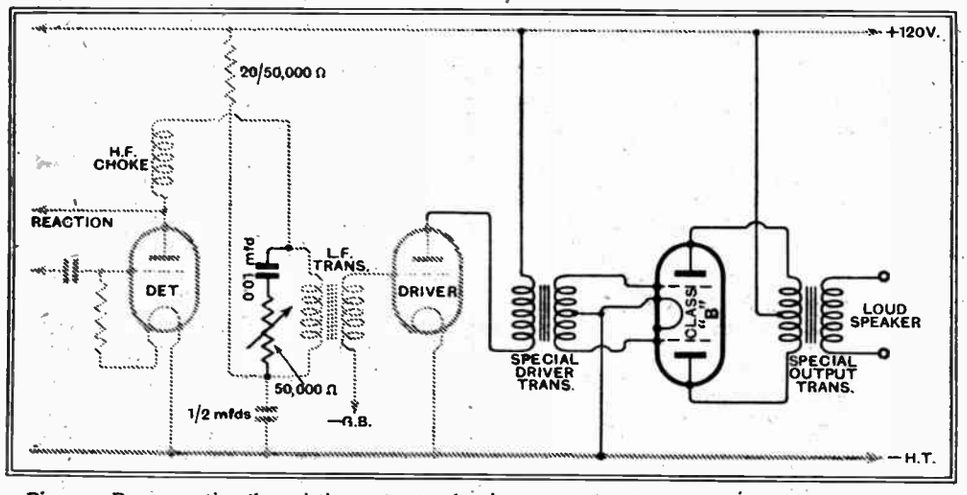


Fig. 1.—By converting the existing output valve into a "driver," a typical battery set may be easily converted to "Class B" amplification. Additions to the original receiver are shown in full lines. The driver valve will require extra bias.

With regard to the driver transformer, it is a matter of some importance that its ratio should be suitable for operating with the type of driver valve actually employed; manufacturers of transformers issue information on the suitability of their products for various conditions.

Test the Tester

IT would appear necessary to stress the point that, before carrying out a series of tests, a start should be made by assuring one's self that the testing device to be used is itself in order. It is wise to make a practice of always doing this, in order that the indications given by the device can be depended upon implicitly.

These remarks are prompted by the fact that several letters have lately been received describing results which are altogether impossible. For instance, one correspondent states that several resistances in his receiver have failed, and then goes on to give a list of measured voltages at points which could only be connected to the source of supply through the resistances that are supposed to be burnt out. We can only think, in this case, that the appliance used for testing continuity is itself at fault.

Aerial Series Trimmer

IT is quite usual practice to trim the input circuit of a receiver by adjustment of a small semi-variable condenser connected in series with the aerial circuit. When this is done, the built-in trimmer across that section of the ganged condenser which controls this circuit is ignored; sometimes, indeed, it is entirely removed.

If everything is in order, an adjustment made in this way at a low wavelength should hold over the band of frequencies covered by the set.

Occasionally, however, a somewhat misleading effect is encountered; towards the upper end of the waveband, readjustment of the series condenser may bring about an appreciable increase in signal strength, thus giving the impression that the circuits are running out of alignment. Actually, this effect is often due merely to an increase in aerial coupling, of which the resultant increase in signal voltage is greater than that due to misalignment caused by the readjustment.

This effect has been noticed by a reader, who asks us to describe how the accuracy of ganging of the aerial circuit may be checked.

We advise him to set the series condenser at a rather lower capacity than usual, and then to gang by means of the built-in parallel trimmer. Then, if a readjustment of this trimmer at a high wavelength has the effect of increasing signal strength, it must be concluded that ganging is inaccurate. If, however, no improvement can be effected by adjustment of the parallel trimmer, our querist can rest assured that ganging is correct; he should return to the original scheme, which is probably the most efficient.

Causes of Misganging

CORRECT alignment of the various tuned circuits in a superheterodyne is even more important than in a straight set; not only is sensitivity impaired, but also second-channel interference is increased by any shortcomings in this direction.

Describing certain peculiarities noticed in operating his Monodial receiver, a querist asks whether we think it possible that ganging is inaccurate; we are also asked to enumerate briefly the possible causes of such a state of affairs.

We have come to the conclusion that local interference—our old enemy man-made static—must be responsible for the minor difficulties encountered by this correspondent. However, for the benefit of other readers, it would perhaps be as well to set down the only likely causes of misganging. These are (1) incorrectly matched coils; (2) incorrect value of intermediate frequency; (3) excessive stray capacity across one of the tuned circuits; (4) a defective tuning condenser, in which the various sections are not properly matched.

It should be noted that the use of an aerial of excessively high capacity may make it difficult to obtain proper alignment. The remedy here is to insert in series with the aerial a semi-fixed condenser.

The "Power Radio-Gram"

WE are asked to say whether the addition of H.F. amplification to the "Power Radio-Gram," as described in the "Hints and Tips" section of *The Wireless World* for March 24th, is likely to increase the pick-up of extraneous noises.

It is unfortunate, but inevitable, that any addition which tends to increase the overall sensitivity of a receiver is bound to increase background noises as well. However, as the sensitivity of an H.F. stage added to the "Power Radio-Gram" in the manner recommended may be controlled within wide limits, the added background noises will be negligible when the set is being operated at about the same overall sensitivity as it possessed before the H.F. stage was added.

The Wireless World INFORMATION BUREAU

THE service is intended primarily for readers meeting with difficulties in the construction, adjustment, operation, or maintenance of wireless receivers described in *The Wireless World*, or those of commercial design which from time to time are reviewed in the pages of *The Wireless World*. Every endeavour will be made to deal with queries on all wireless matters, provided that they are of such a nature that they can be dealt with satisfactorily in a letter.

Communications should be addressed to *The Wireless World* Information Bureau, Dorset House, Stamford Street, London, S.E.1, and must be accompanied by a remittance of 5s. to cover the cost of the service. The enquirer's name and address should be written in block letters at the top of all communications.

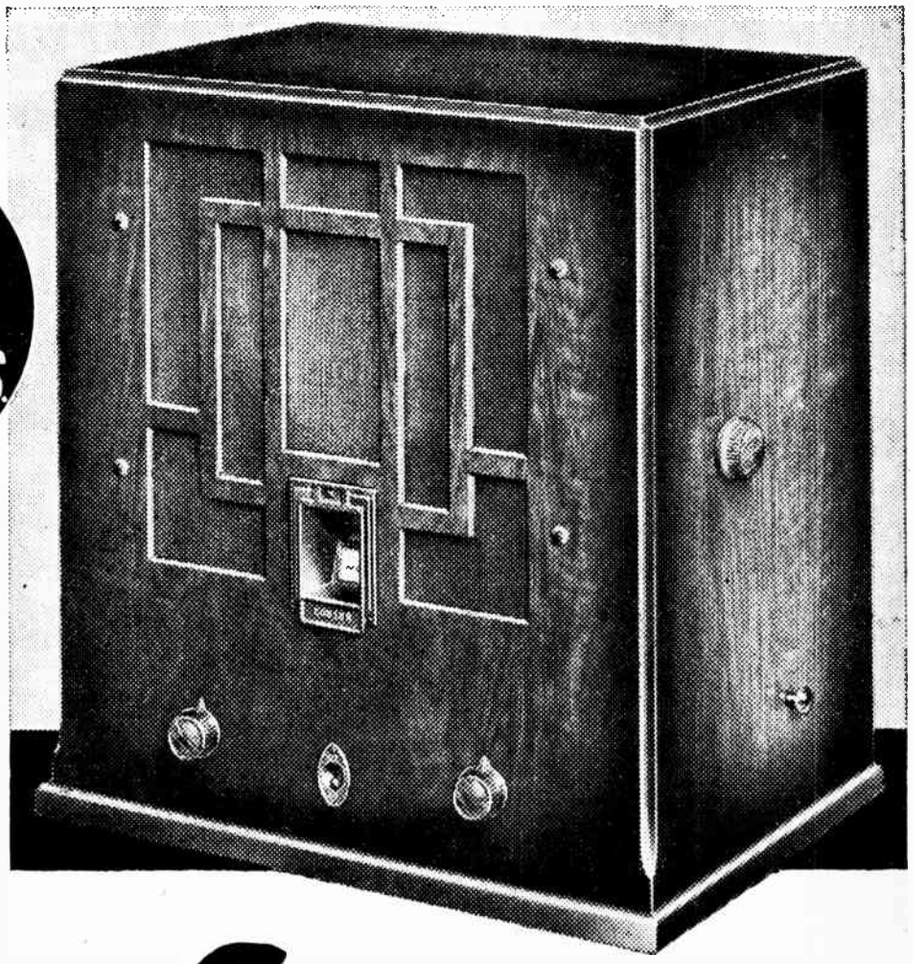
"..a magnificent set.."

writes an enthusiastic user in Leigh, Lancs.

Due to its *two* Variable-Mu Screened Grid Stages this Cossor All-Electric Receiver has exceptional range and selectivity. Its mains-energised moving coil loudspeaker gives superlative reproduction. Continuing his letter, the writer of the above says, ***"I can't praise it enough. The clearness of tone and selectivity are great. Foreign stations come in as well as it is possible to get them....."*** At its low price of £13.15.0 Cossor Model 533A represents outstanding value in de-luxe All-Electric Radio.

FIVE VALVES INCLUDING RECTIFIER

£13-15s.



SPECIFICATION:

Complete Receiver as illustrated with 5 Cossor A.C. Mains Valves, viz.: Two Cossor M.V.S.G. (Metallised Variable-Mu Screened Grid), Cossor 41 M H. Metallised Detector, Cossor 41 M.X.P. (Super-power Ourput) and Cossor 442 B.U. (Rectifier). Completely shielded coils, triple-gang condenser giving one-knob tuning. Illuminated dial, calibrated in wavelengths. Graded volume control and alternative tone selector. Mains-energised Moving-Coil Loud-Speaker, gramophone pick-up plug and jack, magnificent cabinet. Wavelength range 200-580 and 1,000-2,100 metres. For A.C. Mains only 200-250 or 100-125 volts (adjustable), 40-100 cycles.

PRICE **£13.15.0**

Hire Purchase Terms: 27/6 deposit and 11 monthly payments of 25/-.

Complete Receiver Model 533A as illustrated above but fitted with handsomely finished stand forming a magnificent console model.

£14.15.0

Hire Purchase Terms: 27/6 deposit and 11 monthly payments of 27/-.

Prices do not apply in I.F.S.

COSSOR

All-Electric RECEIVER

Model 533A

To Messrs. A. C. Cossor Ltd., Melody Dept., Highbury Grove, London, N.5.

Please send me, free of charge, full particulars of Cossor ALL-ELECTRIC Receiver Model 533A and address of nearest dealer where this set can be heard

Name.....

Address.....

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A. C. Cossor Ltd., Highbury Grove, London, N.5. Depots at Birmingham, Bristol, Glasgow, Leeds, Liverpool, Manchester, Newcastle, Sheffield, Belfast, Cardiff and Dublin.

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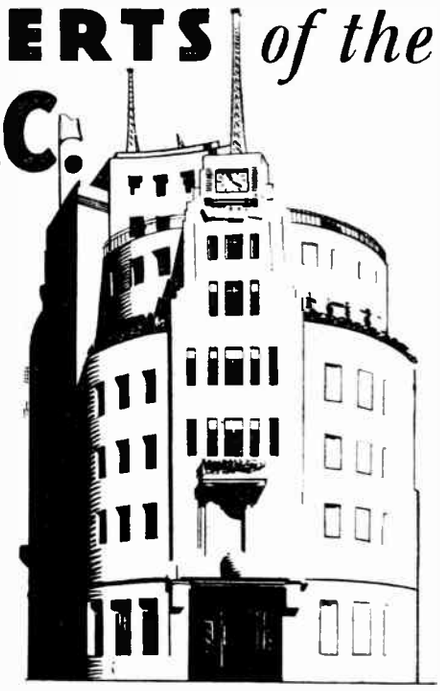

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EDDYSTONE SHORT WAVE COMPONENTS ARE FAMOUS ALL OVER THE WORLD, AND ARE RECOMMENDED TO ALL SET CONSTRUCTORS WHO REQUIRE S.W. COMPONENTS OF THE HIGHEST EFFICIENCY. EVERY PART IS SUBJECTED TO A THOROUGH TEST BEFORE DESPATCH, AND FULLY GUARANTEED.

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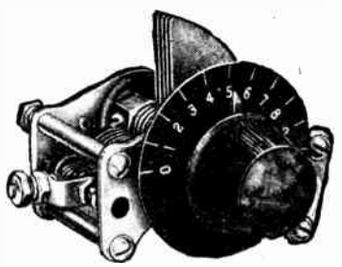
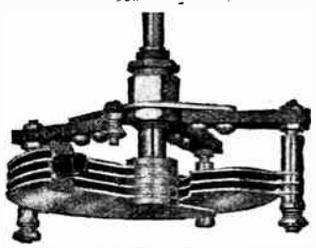
Produced specially for Short Wave tuning. Smooth motion without backlash, and noiseless. Ratio 22:1. Bakelite escutcheon, with hair line reading.
No. 933. Price **7/6**



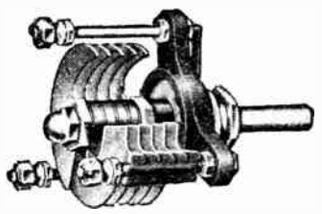
SLOW MOTION REACTION CONDENSER.
This condenser has a 10–1 vernier motion that is perfectly smooth and responds to the slightest touch without any backlash.
Price—.00015 mfd. **8/6.** .00025 mfd. **9/6**



S.W. VARIABLE CONDENSER.
The ideal condenser for general purposes. Short Wave tuning. Soldered vanes, noiseless bearing, minimum of insulation dielectric.
No. 922. .00016 mfd. Price **9/6**

SHORT WAVE VALVE HOLDER.
Low loss construction with legs made from one piece to prevent noise. It is very suitable for 5-10 metre work, as well as all ordinary S.W. purposes.

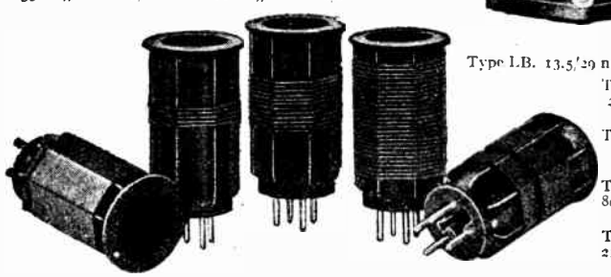
No. 501 4 pin. Price **1/3** No. 500 5 pin. Price **1/6**



MICRODENSER.
Suitable for all S.W. purposes and in particular for 5-10 metre work. Soldered vanes, bakelite bearing. Isolex insulation. Small external field.

15 m.mfd.	**4/6**	50 m.mfd.	**5/6**
25 ,,	**4/9**	75 ,,	**6/-**
35 ,,	**5/-**	100 ,,	**6/6**

SHORT WAVE H.F. CHOKE.
9-100 metres. A high efficiency choke designed for purely short wave use. Self capacity less than 1 m.mfd.
Price **2/6**



Type LB. 13.5/29 metres **3/6.**
Type Y—22.5/47M, **3/6.**
Type R—41/87M, **3/6.**
Type W—80/220 M, **4/-.**
Type G—210/550M, **4/6.**

4 PIN S.W. COILS. These coils fit the standard valve holder and comprise grid reaction winding. Small external field, spaced turns, highly efficient. Set of 5. 13-550 metres.

Sole Manufacturers—**STRATTON & CO. LTD., Balmoral Works, BIRMINGHAM**
LONDON SERVICE DEPOT—**WEBB'S RADIO STORES, 164, Charing Cross Road, W.C.2**

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The proprietors retain the right to refuse or withdraw advertisements at their discretion.

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The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

For particulars of Box Number Advertisements and Deposit System see previous issues

RECEIVERS FOR SALE.

MARCONIPHONE (47), S.G. 4-valve set, A.C. mains, in all-metal case, and Marconiphone New Senior P.M. speaker in mahogany cabinet; the two, carriage paid, £8.—Watson, 85, Glenmarkie Terrace, Dundee. [2480

ALL-WAVE Monodial, 5-valve Columbia Portable, S.T. 300, and sundry parts; no junk; genuine bargains; stamp with enquiries.—Frank Rowe, Rylands, Sampford Arundel, Taunton. [2477

FERRANTI A.C. Band Pass Screened Grid Three, all components, Westinghouse metal rectification, Rola, permanent magnet M.C. speaker, 2 sets valves; £10 or nearest offer.—Box 6700, c/o *The Wireless World*. [2484

5-VALVE A.C. Mains Kolster-Brandes Model 320, practically new; £12.—Box 6717, c/o *The Wireless World*. [2498

PYE Model Q, recently listed 13 guineas, in sealed cartons, £8 19/6; another, shop soiled, £7/10.—Mitchell, 3a, Selhurst Rd., S.E.25. [2499

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CLIMAX All-electric 200-250 A.C. Band Pass Three in walnut cabinet, complete with valves and moving coil speaker; list price £16/16, unopened, £8/8; c.o.d.; carriage paid.

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OSTER-GANZ Combined A.C./D.C. All-electric Set, 3 valves and Magnavox moving coil speaker, in walnut cabinet; list price £11/11, our price £4/19/6; c.o.d., carriage paid.

50/-.—Ediswan D.C. All-electric Set, S.G., detector and Pentode, without valves, can be converted to A.C.; list price, 21 guineas, unopened packing; c.o.d., carriage forward.

ETHATROPE Station Dial, 4 valves and rectifier, all-electric set, in walnut cabinet, moving coil speaker; list price, 23 guineas, unopened, £10; c.o.d., carriage paid.

BROWNIE 3-valve All-electric Set, in walnut cabinet, complete with moving coil speaker; list price £15/15, unopened, our price £7/15; 2-valve, list price £9/9, for £5/15; c.o.d., carriage paid.

ULTRA Blue Fox, complete with valves and moving coil speaker, in walnut case; list price £10/10, our price £5; c.o.d., carriage paid.

PHILIP KAY, Ltd., 167, City Rd., Finsbury, London, E.C.1. [2454

CLIMAX Band Pass Three, £16/16; A.C. Receiver, complete with valves in sealed carton, £8/8, carriage paid; c.o.d.—Epton, 93, New Rd., Chingford, E.4. [2466

BETTER Part Exchange at Appleby's, the originators of radio part exchange over 14 years ago.

APPLEBY'S, 109, Edgware Rd., Hyde Park, London. Factors and Valuers of Radio. [2465

BARGAINS in Used and Shop Soiled Sets; any make and type supplied and guaranteed; enquiries invited.—Amalgamated Services, 161, Wardour St., W.1. [2492

1933 Ferranti 3 Band Pass, brand new valves, batteries, speaker, £7; also pedestal cabinet, 5 valves, M.C., £9; sacrifice, moving.—Seaman, 4, Clover Mews, Chelsea, S.W.3. [2489

PHILIPS S.G.3 Battery Model, power or pentode; 40/-.—10, Nightingale Rd., W.7. [2509

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SEE T. W. Thompson and Co's Bargain Advertisement for Receivers, etc., on page 12. [2522

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ACCUMULATORS.—Fuller's 6,500 milliamp. high tension 12 ten volt units supplied for 7/6 down; lists free.—Leslies Radio, Catford, S.E.6. [2485

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TRICKLE Chargers, 2-6v., with Westinghouse rectifiers, complete, ½ amp. 11/9, 1¼ amp. 19/11; seven days' trial; postage 9d.

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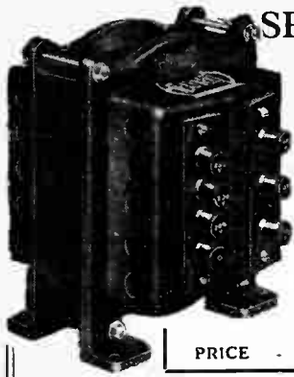

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66R. with cone and chassis, 27/6; W.B. PM3, 27/6; Amplion MC6 P.M., £2; Philips P.M., 35/-; Amplion Lion, 29/6.—Bostock, 1, Westbourne Terrace, S.E.23. [2508

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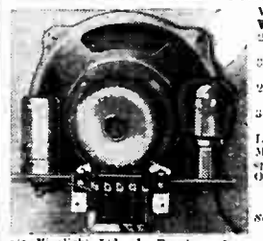

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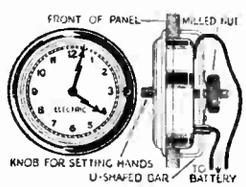

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SPECIAL Offer of Wire-wound Resistances: 4 watts, any value up to 10,000 ohms, 1/-; 8 watts, any value up to 15,000 ohms, 1/6; 15 watts, any value up to 50,000 ohms, 2/-; 25 watts, any value up to 50,000 ohms, 2/6; 50 watts, any value up to 50,000 ohms, 3/6.

WIRE-WOUND Potentiometers, 15,000 ohms, 1/6; Centralab Potentiometer volume controls, 50,000 ohms, 2/-.

HEAVY Duty Variable Resistances, slider type, wound on porcelain, 2,000 ohms quarter-amp. and 500 ohms half-amp., 5/- each.

FOR Callers Only.—The following valves, guaranteed as new: S4V.B., A.C.S.G., M.S.G.L.A., D.W.3, P.T.4, P.T.625; D.C./P.E.N., M.S.4, M.S.4B, 41M.H., M.H.4, M.L.4, 354V, 904V, G.U.1, U5, D.S.B., D.C.S.G., V.D.S., 442B.U., A.C.044, D.C.2S.G., D.C.2S.G.V.M., D.L., D.S., S4V.A., U.U.60/250, at half list price.

500-VOLT 125 Milliamp Full Wave Rectifying Valves, 4 volt 2 amp. filament; 7/6.

PHILIPS 328 Valves for L.T. Charging, 5/6; 329 Barreter lamp, 2/-.

DAPTACON Pick-up and Arm, 6/6; Truvox ditto, 13/6; Radiophone ditto, 13/6; Harlie pick-up and arm, with volume control, 15/6; Amphon ditto, 15/-.

SMOOTHING Chokes for Series Connected Filaments from D.C. mains, carry 1 amp, 7/6; H.M.V. 110 henry chokes (100,000 ohms resistance), carry 10 milliamps, 3/6.

PREMIER Eliminators, input 200-250 volts, 40-100 cycles A.C., incorporating Westinghouse metal rectifiers, output 250 volts at 60 milliamps, 80- and 120-volt taps, 42/6; with 4 volts 4 amps, e.t., L.T., 7/6 extra.

PREMIER Eliminators, output 150 volts at 30 milliamp., 80- and 100-volt taps, with 4 volts 3-4 amps. e.t., L.T., 37/6; or with trickle charger, 42/6.

PREMIER Eliminators, output 120 volts at 20 milliamps., 80- and 100-volt taps, 27/6; with L.T. trickle charger incorporated, 35/-.

D.C. Eliminators, output 120 volts at 20 milliamps., 80- and 100-volt taps, 15/-; larger model, output 200 volts at 50 milliamps., 90- and 120-volt taps, 25/-.

ACCUMULATOR Chargers, 200-250 volts A.C., all incorporating Westinghouse rectifiers: 2, 4 and 6 volts at half-amp., 17/6; 2, 4 and 6 volts at 1 amp., 22/6; 12 volts at 1 amp., 27/6; 6 or 12 volts at 2 amps., 35/-; 12 volts at 1.5 amps., 30/-; 6 volts at 3 amps., 39/6; 12 volts at 3 amps., 52/6; 3 separate 12-volt 1-amp. circuits, 75/-.

AMPLION High Inductance Chokes, resistance 2,500 ohms, 80 henrys, 60 milliamps., 5/6.

WESTINGHOUSE Metal Rectifiers.—120 volts at 20 milliamps., 6/6; 180 volts at 30 milliamps., 8/6; 250 volts at 60 milliamps., 10/-; 200 volts at 100 milliamps., 11/-; 300 volts at 60 milliamps., 11/-; 8 volts at half-amp., 6/6; 6 volts at 1 amp., 9/6; 12 volts at 1 amp., 12/6; 6 volts at 2 amps., 20/-.

T.C.C. Condensers, 250 volts working, 4×4×1 mfd., 5/-; 300 volts working, 4×4×2×2×2 mfd., 7/-; 375 volts working 6×4×2×2×2 mfd., 10/-; 300 volts working 4×4×2×1 mfd., 6/-.

400-Volts Working, 3 separate 4 mfd. Condensers, 8/6; Western Electric, 400 volts working, 0.01+0.01 mfd., 1/-; Blocks 4+2+2+2+1+0.09 mfd., 400 volts working, 6/-.

FERRANTI Condenser Block, 300 volts working 4+4+2+2 mfd., all entirely separate; 10/-.

T.C.C. Condensers 750 volts working, 2 mfd., 4/-; 750 volts working 4 mfd., 6/-; 4 mfd. 400 volts D.C. working (300 volts A.C. working), 4/-.

WESTERN ELECTRIC Condensers, 250 volts working, 1 mfd., 6d.; 2 mfd., 1/-; 400 volts working, 1 mfd., 1/-; 2 mfd., 2/-.

PREMIER Guaranteed Mains Transformers, engraved terminal strips with terminal connections, input 200-250 volts 40-100 cycles, output 135 volts 80 milliamps., for voltage doubling, 8/6; 4 volts, 3-4 amps., c.t. L.T. 2/- extra; Westinghouse rectifier for above, giving 180 volts at 30 milliamps., 8/6.

PREMIER Mains Transformers, output 250-0-250 volts at 60 milliamps., 4 volts 1-2 amps., 4 volts 2-3 amps., and 4 volts 3-4 amps. (all centre tapped), with screened primary; 15/-.

PREMIER Mains Transformers, output 400-0-400 volts at 100 milliamps., 4 volts 4-5 amps., and 4 volts 2.5 amps., 15/-.

H.T.8 Transformers, 250 volts 60 milliamps, rectified, with 4 volts 3-5 amps. c.t. L.T., with screened primary, 15/-; with Westinghouse rectifier, 25/-.

H.T.9 Transformers, 300 volts 60 milliamps, rectified, with 4 volts 3-4 amps. c.t. L.T., with screened primary, 15/-; with Westinghouse rectifier, 26/-.

H.T.10 Transformers, 200 volts 100 milliamps, rectified, with 4 volts 3-4 amps. c.t. L.T., with screened primary, 15/-; with Westinghouse rectifier, 26/-.

PREMIER Mains Transformers, 12 volts 1 amp., 7/6; 9 volts 1 amp., 7/6; 4 volts 4 amps., and 4 volts 2 amps., 8/6; 4 volts 3 amps., 7/6; 4 volts 5 amps., 8/6; 6 volts 2 amps., 7/6; 14 volts 4 amps., 12/6; 22 volts 1 amp., 10/-.

MAINS Transformers, output 350-0-350 volts 90 milliamps., 4 volts 3 amps. (c.t.), and 4 volts 2 amps. (c.t.); 12/6.

(This advertisement continued in third column.)

VULCANUS (called Hephaestus by the Greeks) is the patron of all artists who work iron and metal.

We have no record that he extends his patronage to cover workers in cone diaphragms as well, but he undoubtedly recognises the "Magna" as the artistic Masterpiece it is.

It is the best moving coil speaker that money can buy. Of course you need to pay a bit more for it than for the "lesser breeds" but it will put quality reproduction within your reach, and you are not likely for long to be satisfied with anything less.

SPECIFICATION.

Magnavox Speakers are supplied with multi-ratio universal transformers, or with push-pull transformers to special order.

D.C.142 "Magna," 8¾-inch cone, 2,500 ohms field coil - - **£3 5 0**
Voltage, 100-200; current, 40-80 M.A.

D.C.142 "Magna," 8¾-inch cone, 5,000 ohms field coil - - **£3 7 6**
Voltage, 140-280; current, 28-56 M.A.

DUAL COMPENSATED.

D.C.142/144, 2,500 ohms field coils with either No. 20500 or No. 20503 transformer - per pair **£5 0 0**

Full details of the complete Magnavox range are found in Catalogue No. D636, a copy will be sent on request.

MAGNAVOX

MAGNAVOX (GREAT BRITAIN) LTD., 89, KINGSWAY, LONDON, W.C.2.

Components, etc., for Sale.—Contd.

(This advertisement continued from first column.)

AMPLION Mains Transformers, input 100-250 volts, output 350-0-350 volts 120 milliamps, 4 volts 5 amps, 4 volts 2 amps., and 6.7 volts 1 amp. (all centre tapped); 17/6.

AUTO Transformers, 100/200-250 volts or vice versa; 60 watt 7/9, 100 watt 10/-, 180 watt 15/-.

SPECIAL Offer of Mains Transformers, manufacturers' type, any input, output 250-0-250 volts 60 milliamps., 4 volts 1 amp. (c.t.) and 4 volts 3 amps. (c.t.), 8/6; 180-0-180 volts 40 milliamps., 4 volts 1 amp. and 4 volts 2 amps., 4/6; 175 volts 50 milliamps., 4 volts 4 amps. and 4 volts 1 amp., 5/6; H.T.8, with 4 volts 3-4 amps., 8/6, with rectifier 18/6.

PYE Chokes, 20 or 32 henrys, 4/-; Multi-ratio output transformers, 6 taps, giving 15 different ratios, 7/6.

PREMIER Chokes, 40 milliamps, 25 henrys, 4/-; 65 milliamps, 30 henrys, 6/-; 150 milliamps, 30 henrys, 10/6.

AMSCO 3-gang 0.0005 Condenser, with trimmers (listed 30/-), our price 7/6; Polar 0.0005 and 0.00035 bakelite dielectric condensers, with knob, 1/-.

POLAR 3-gang Variable Condensers, tub type, fully screened, split end vanes and disc drive, 0.0005, 10/-; Ormond all-brass 2-gang condensers, semi-shielded, 0.0005, 5/-.

BRITISH Radiophone 4-gang Condensers, with trimmers, fully screened, 16/-; Colvenstats, logarithmically wound potentiometers, 6,000 ohms, 1/9.

ALL the Following Lines 6d. each or 5/- per dozen Assorted: Shielded S.G. or pentode leads, Polymet 0.01 condensers, 2ft. lengths of screened wire, 5-pin valve holders, Crabtree 5 amp. sunk switches, T.C.C. 0.01 mfd. condensers, 0.5 condensers.

AMPLION Six Receivers, listed £21, complete with valves, 200-250 volts A.C.; 9 guineas.

ALL Orders to The Premier Supply Stores, 20-22, High St., Clapham, S.W.4. Macaulay 2188. Closed 1 o'clock Wednesdays. Open to 9 o'clock Saturdays. Nearest Station Clapham North Underground. [2520

T. W. THOMPSON and Co., 14-17, Strutton Ground, Westminster, S.W.1.

REGENSTAT Var Voltage Controls, 2 meg. for eliminators, etc., list 6/6, to clear 1/3, complete with knob.

BROADCAST Microphones, pedestal type, with rubber suspension, 15/6; watch type pattern, very sensitive, 4/6 post 6d.; highest grade Reisz pattern microphone in heavy polished octagonal aluminium case, with rings for suspension, 52/6, post 1/-.

HEAVY Workshop Flex; 3/- dozen yds., post 6d.

LOEWE Loud-speaker Units, brand new, boxed, 4 pole, balanced armature, list 25/-, clearing at 7/6, post 6d.

AERIAL Wire, 7-strand, copper, 1/6 per 100ft.

BROWNS Metal Eliminator Cases, size 10in.×6in.×5in.; 9d. each post 6d.

EDISWAN D.C. All-electric Sets, Det., S.G., and Pentode, list 21 guineas, complete, minus valves, 50/-. T. W. Thompson and Co., 14-17, Strutton Ground, Westminster, S.W.1.

SEE Thompson's Bargain Advertisement on page 12. [1889

PEPPER Offers the Following Under Usual Guarantee, money refunded if dissatisfied, all goods guaranteed perfect; cash or c.o.d., carriage extra orders under £2. VALVES.—P.M.24A, P.M.24B, P.X.4, A.C./S.G., M.S.4, D.W.3, etc., 9/11; P625.A, P.M.256A, 5/11; P.M.256, P.M.4D.X., P.M.3, P.M.5X, P.M.6D, L610, etc., 2/3; P.M.1D.G., 8/6; Pen220A, 10/6; Tungsram S.G.215, 8407, Mullard P.M.14, P.M.16, P.M.24, P.M.26, 7/6; Cosmos A.C. P1, S.P.45 U, S.P.42 U, A.C.X, A.C./S.G., 5/- each; D.S.B., D.C. Pen, D.C./S.G., 9/11. MAINS Transformers.—Challis for Monodial, 19/6; Savage L.T. transformers, 4v. 5a., 4v. 1a., 4v. 1a., 4v. 1a., 10/6; 250-0-250, with L.T.s (200v. pri.), Igranic ditto for 200-250, 10/6 each; another, 250-0-250v. 60 m.a., 4v. 1a., 4v. 4a., 9/6; G.E.C. for H.T.6, with L.T.s, 7/6; Metrovick 250-0-250v., 4v. 2a., 4½/6; ditto for 100-120 input, 9/6; Parmeko 300-0-300, with L.T.s for 100-120v., 10/6. CLEARANCE of Shop Soiled Scradex Super Transformers, all primaries for 200-250 volts, heavy terminals, massive aluminium clamps, all L.T.s C.T. H.T.10 150v. 300 m.a., 15/-; with L.T.s, 17/6; stripped, 12/6; H.T.11 with 300v., 550 m.a., 4v. 2, 4v. 2, 4v. 3, with primary terminals, 18/6.

W3 for H.T.5, 80s., 75 m.a., with L.T.s, 9/6; H.T.6 ditto, 10/6; H.T.7, 11/6; H.T.7, stripped, no L.T., 8/6; L.T. type, 4v. 5a., 9/6; ditto, 5v. .8a., 5v. 1.6a., 7/6; all fully guaranteed.

SPECIAL Modern Straight 5 Transformers, 400-0-400, 4v. 1a., 4v. 3½a., 4v. 3a., 25/-, listed 52/6; 230-0-230, 120 m.a., 4v. 1a., 4v. 4a., 4v. 3a., 16/-.

CHARGERS.—Few Scradex, charge 20 D.T.C.s, complete with meter and new valve, £1/17/6; few experimental ditto, cased, 42/- complete; Westinghouse rectified chargers, 200v. ½ amp., £1/15.

TRICKLE Chargers.—Ferranti, 22/6; Philips, Symphony metal-rectified, 14/6; Eken, 16/6.

TRANSFORMERS and Westinghouse Rectifiers.—A3, £1/2/6; L.T.2, 17/6; L.T.4, 19/6; L.T.5, £1/2/6; L.T.6, £1/7/6; H.T.4, 12/6; H.T.7, 17/6; H.T.8, £1/1.

SMOOTHING Chokes, etc.—Ferranti B8, 3/11; Pye 20h. and 32h., 6/3; Varley Pentode output, few shop soiled Scradex Super type Pentode chokes, all tapped, ¼, ⅜, ½ 60h. at 35 m.a., 10/6; 50h. 30 m.a., 8/11; sectionally wound 60h./80 m.a., weight 10½lb., £1/2/6; untapped, 50h./120 m.a., 15/6.

GANGED Condensers.—J.B. Chassimounts, with drives, 3-gangs, 10/6; 2-gangs, 7/6; singles, 4/11; Lyons boxed 4-gangs, 12/6; Ormond ditto, 9/11; Polar Tubs 2-gangs, 7/11; Ontunes 2-gangs, 9/11; few more H.M.V. 2-gangs, similar to Radiophone, 4/11; Cyldon 4-gang, with screens, 10/6.

COILS.—Wearite Binowaves, type C, boxed, 5/11; 0.2, O.S.C.44, I.F.T.P., I.F.T., etc., 4/11; A.T.G., 4/3; British General B.P. units, aerial or anode, 5/6 each; Intervalve coils, 3/11; Varley B.P.5, 7/6; B.P.6, 4/3; Tomatunas, 4/11; Colvern T2R, R2R, Orgolas, etc., 3/9; T.C.S.C.s, with cans, 4/11.

I.F. Transformers.—A.F.4, 7/9; A.F.5, 17/6; O.P.4C, 9/11; O.P.M.3, O.P.M.6, 12/6; B.T.H., various ratios, 4/11.

PEPPER, Wakegreen Rd., Birmingham, guarantees all the above, and will send any on 3 days' approval against cash, or c.o.d.; order now while stocks last. [2513

A.F.3, 7/6; O.P.2, 6/11; O.P.M.2, 7/6; A.F.4, 5/11.—Mackay, Station Rd., Corstorphine, Edinburgh. [2488

Components, etc., for Sale.—Contd.

R.

SELECTED Parts for Sale, as new; any c.o.d. or "Wireless World" deposit system, which we recommend if in doubt as to the splendid value offered; we take risk of damage in transit to our customers; goods tested for callers and guaranteed.

METERS, moving iron and moving coil, all new instruments specially made for Ryall's Radio, all guaranteed for one year, moving coil meters to B.E.S. first grade specification, all panel flush type bakelite case

MOVING Coil, 0-1 m.a., 25/-; 0-10 m.a., 0-5 m.a., 21/-; 0-250v., 1,000 ohm per volt, 32/6; 0-300v. ditto, 33/6; all with zero adjustment, size 3½in. diameter, 2½in. dial face.

WE Hold a Large Stock of First Class Radio Apparatus, meters, resistances, condensers heavy chokes, etc., in addition to goods advertised.

VALVES, all guaranteed, full emission.—P.M.24D, 20/; P.M.24M, 8/-; P.T.4, 6/-; P.M.22, 5/-; P.X.4, 10/-; A.C./P.1, 8/6; 41M.P., 8/-; A.C./H.L., 6/6; M.H.L., 7/6; A.C./S2, 9/-; S4V.A., new, 12/-; M.S.4, 7/6; M.S.4B, 9/-; D.P.T., 10/-; D.W.2, 7/6; H10, 7/6; D.W.3, 8/6; 164v., 7/6; P.V.4200, rect., 7/6. Following callers only: P.T.625, 5/-; P625, 5/-; P625A, 5/-.

UNIVERSAL Avometer, £8/12; Varley S.P. coil, 7/6; H.F., 5/-; Varley auto arm, 5/-; Class B Ferranti A.F.5c, 17/6; O.P.M15c, 17/6; Benjamin driver, 6/6; Atlas Q eliminator, new, £2; R. and A. 100P.M. speaker, 25/-; Celestion Soundex, 13/-; pair Varley P.P. transformer, 25/-; 20H 250 m.a. chokes, 15/-; Varley 2,500 ohm power pots, 4/6

RYALL'S RADIO Offer Reliable Resistances, 1 watt, suitable for all "Wireless World" sets where a 1 watt resistance is specified, in values 100, 500, 1,000, 2,000, 5,000, 6,000, 10,000, 25,000, 30,000, 75,000, 150,000, 250,000, 20,000, all values stated in ohms, 6d. each, guaranteed one year, wire ends, new goods.

SPECIAL Offer of Pye 20h. Chokes, 40 m.a., 130 m.a. maximum, D.C. resistance 300 ohms, brown crystaline finish, new, Pye 32h. chokes, D.C. resistance, 700 ohms, 30 m.a., 80 m.a. maximum, ditto, 6/3 each, post free.

SUITCASE Cabinets in Best Crocodile Leather, 14 × 14 × 8, ample room for 12in. turntable and pick-up; 15/-, new; Magnavox D.C. 144, with transformer, 2,500 ohms, 22/6.

RYALL'S RADIO, 33, Chancery Lane, London, W.C.2 (nearest Tube Chancery Lane; 'bus 67 passes door, or train to Savoy St.). Holborn 3529. Open Saturday afternoon. Close 7 p.m., Thursdays 1 o'clock, Saturday 6 p.m.

R. [2521

SEE T. W. Thompson and Co's Bargain Advertisement for Components, etc., on page 12. [2523

MIHALY Pullthrough Sound Heads, complete with optical systems, splendid condition; £3/10 each.

BROWN'S First Stage Amplifiers, in metal cases, £1/5 each; Voight cinema speakers, 200v. D.C. field, £5/10 each.

EPOCH Super Cinema Loud Speakers, 6v. or 200v. D.C. field, £5 10 each; Igranic twin electric turntable, in oak case, £7 10.

BROWN'S A.C. Eliminators, for first stage amplifiers, £2 each; Igranic 24 watt A.C. amplifiers, £3 each.

TO Callers.—A large quantity of public address and talkie gear to be cleared, knock-out prices, prior to removal to larger premises, comprising: Transtone amplifiers, with R.C.A. valves; E.T.P. amplifiers, Amplion, and numerous other makes; motor generators and converters, 100 G.E.C. and Zenith various slider resistances, microphones, Edibell voltage regulators, Weston meters, A.C. transformers, R.A. horns and units, charging panels, variable transmitting condensers, 100lb. Eureka various gauge wire, Ferranti transformers and chokes and electric motors and starters, etc; please 'phone before calling, or write.

H. FRANKS, 42a, St. George's St., Shadwell, London, E.1. 'Phone: Royal 8546. Nearest Underground Railway, Shadwell Station. [2496

SOUTHERN RADIOS Wireless Bargains.—Mains transformers: Fully tapped primary 200 250v. 50 cycles centre tapped L.T. 250 0 250, 60 m.a., 4 volts 1 amp., 4 volts 3 amps., 11/- each; 350 0 350, 60 m.a., 4 volts 2 amps., 4 volts 4 amps., 13/-; 350 0 350, 120 m.a., 4 volts 1 amp., 4 volts 2 amps., 4 volts 4 amps., 18/-; 450 0 450, 120 m.a., 4 volts 2.5 amps., 4 volts 4 amps., 4 volts 2 amps., 19/6; 500 0 500, 140 m.a., 4 volts 2.5 amps., 4 volts 5 amps., 21/- each.

SMOOTHING Chokes: 40 henry, 40 m.a. 700 ohms, 6/6; 20 henry, 60 m.a. 480 ohms, 7/9; 15 henry, 100 m.a. 330 ohms, 8/9; 20 henry, 120 m.a. 270 ohms, 9/3; 50 henry, 60 m.a., 8/3.

PENTODE Output Chokes, tapped 1½, 2 and 3 to 1 ratios, 50 henrys, 30 m.a.; 7/9 each.

ALL Transformers are Brand New and Guaranteed for 12 months; special capacities quoted for and delivery given within three days of order. Southern Radio. Set manufacturers new surplus.

SOUTHERN RADIO Wireless Bargains; set manufacturers' guaranteed surplus. Ready Radio constructors' kit: 303 3-valve battery kit, less valves, 18/6, with three Mullard valves (P.M.1L.F., P.M.2D.X., P.M.2). 36/- each (list 70/-); Meteor screen grid 3-valve kit, less valves, 26/-, with three Mullard valves (P.M.12a, P.M.2D.X., P.M.2). 49/- each (list £5 7 6); Meteor screen grid 3-valve "A" kit, including cabinet, Celestion permanent magnet speaker, and kit of parts less valves, £3/7/6, with three valves as above, £4/12 6 (list £3 17/6); Mullard Radio for Million 3-valve A.C. kits, complete, with three Mullard valves (P.E.N., 4v., 354v., S4v.), £3/12/6 (list £6 10); please note all kits advertised by us are brand new, and contained in original sealed cartons; the valves advertised with these kits are manufacturers' specified valves.

CELESTION Permanent Magnet Soundex Speakers, brand new and boxed, 16/- each (list 27/6); Cyldon three-gang condensers, 0.0005, shrouded and trimmers, 8/9 each (list 52/6); genuine Amplion loud speaker units, 2/9 each (list 12/6); screened chokes (H.M.V.), 1/- each; condensers: 4 mfd., 2/6 each; 2 mfd., 1/9; 1 mfd., 1/- each, all 750 volt test; blocks, 12 mfd. (2+2+2+2+2+1+1), 6/9 each; 10 mfd. (2+2+2+2+1+1), 6/3 each; all 1,500 volt test; mains transformers, all capacities, in stock and specials quoted for; all goods guaranteed in every way and carriage paid.—Southern Radio, 323, Euston Rd., London, N.W.1 (near Warren St. Tube). 'Phone: Museum 6324. [2497

Go for a 'Pleasure Cruise' next week-end!

'Visit' Italy, Africa, Spain, Australia, Russia, New Zealand, America and other distant countries without stirring from your arm-chair. You can, if you fit an Eelex Short-Wave Convertor to your present set.

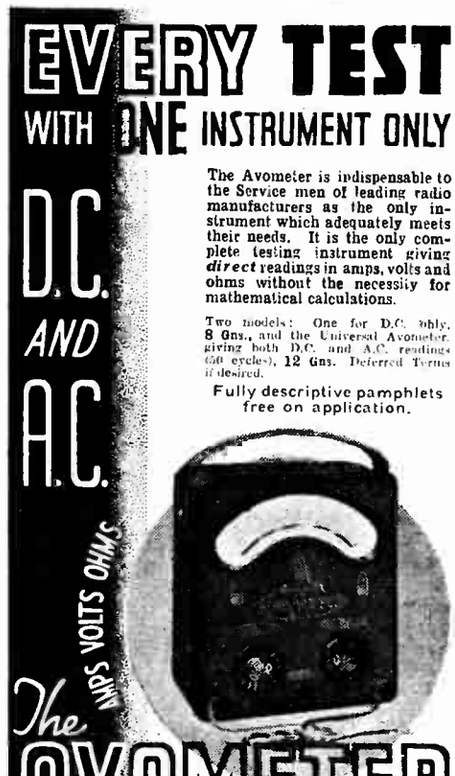
Receive short-wave stations from all parts of the world, with an Eelex Short-Wave Convertor fitted to your set it is possible to tune as low as 14 metres. No listener should be without one. The range of your receiver will be increased by over 70 extra stations, including the new Empire Broadcasting station.

It is simplicity itself to fix—no alterations necessary. Placed between Aerial and Set, converts set into super-het. Range increased without interference with normal performance.

Prices for Battery or Mains Sets.
£2. 18. 6 including Duplex Coils covering wave-length of 15 to 60 metres. Valve extra for Battery use 7/-. Valve for Mains use 13/6. Available in chassis form, prices on application. For further particulars write for free Booklet Number C42.

Please state type of set when ordering.

J. J. EASTICK & SONS,
Eelex House, 118, Bunhill Row, LONDON, E.C.1.
'Phone: Metropolitan 0314 (6 lines).



The Avometer is indispensable to the Service men of leading radio manufacturers as the only instrument which adequately meets their needs. It is the only complete testing instrument giving *direct* readings in amps, volts and ohms without the necessity for mathematical calculations.

Two models: One for D.C. only, 8 Gns., and the Universal Avometer giving both D.C. and A.C. readings (50 cycles), 12 Gns. Deferred Terms if desired.

Fully descriptive pamphlets free on application.

THE AUTOMATIC COIL WINDER AND ELECTRICAL EQUIPMENT CO., LTD.,
Winder House, Douglas Street, London, S.W.1.
'Phone: Victoria 3405-7

Components, etc., for Sale.—Contd.

GILBERT INDUSTRIES Stocktaking Offer:—

60 Parcels Containing 1 Each of the Following High Grade Components to Clear Remainders: 1 Cadmium plated chassis, 14in.×9in., 1 heavy mains transformer, 350-0-350 at 60 m.a., 4v. 4a., C.T., 4v. 2a. rect., 1 H.M.V. 2 gang with trimmers and 2 coils, 1 Electrolytic, 8 mfd., 435 working, 1 H.M.V. screened H.F. choke, 1 volume control, 1 smoothing choke, 50h. 50 m.a.; complete parcel £1, post paid by return.—Gilbert Industries, 519, London Rd., Westcliff-on-Sea, Essex. [2393

UTILITY 0.0005 2-gang Fully Screened Condensers complete with dise drive, brown knob and escutcheon, new and boxed, 12/-; Utility 0.0005 3-gang, fully screened, with dise drive, brown knob and escutcheon and dial light, new and boxed, 15/-; Utility Mite drum dials, with 0.0005 dielectric condenser, new and boxed, 2/-.

MAGNAVOX and Rola D.C. Moving Coil Speakers, for 200-250 D.C., 6,500 field and pentode transformer, 15/- each; T.C.C. condenser blocks, 2×2×2×1×1, 2/6; 4×4, 2×1, 3/6; 250 volts D.C. working.

MAINS Valves, guaranteed as new, D.S., D.P.T., V.D.S., S4V.A., metallised, 244v.; half list price.

CONDENSER Blocks, 250 volts working, 4×2×2×1, 3/6; Loewe vacuum type resistances and condensers, 3,000, 10,000, 15,000, 25,000, 50,000, 100,000, ½, ½ and 1 meg. 0.005 condensers, 3d. each, 2/- per dozen; special price for quantity.

WESTINGHOUSE Metal Rectifiers, as new, 250 volts 60 m.a., 10 6; 120 volts 20 m.a., 7/6; 6 volt ½ amp., 7/6.

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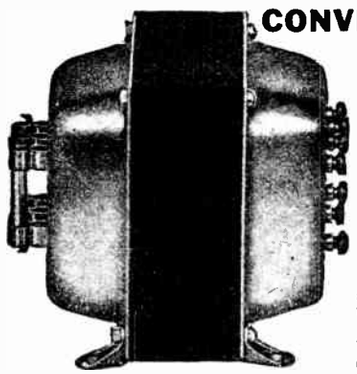

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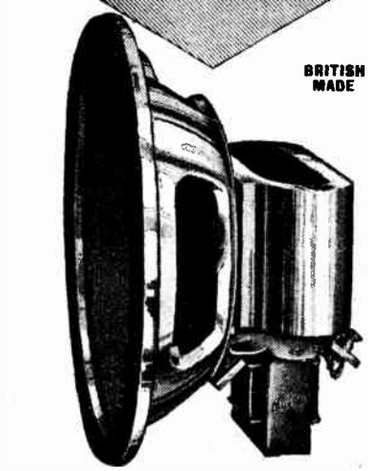

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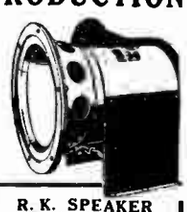

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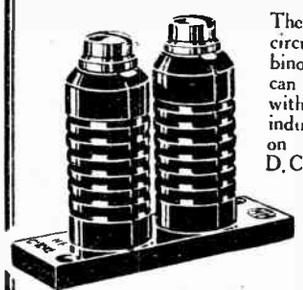

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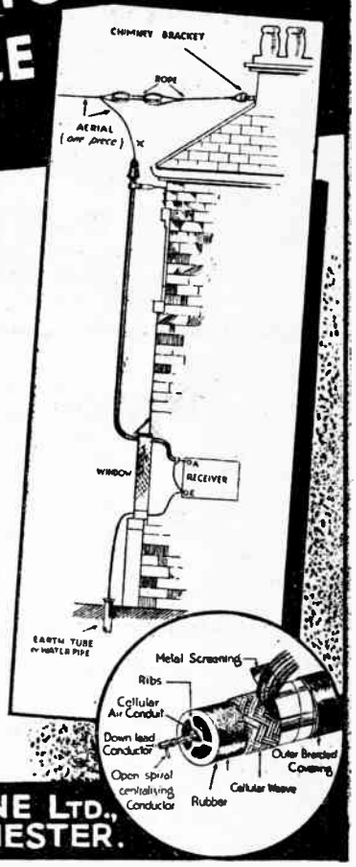

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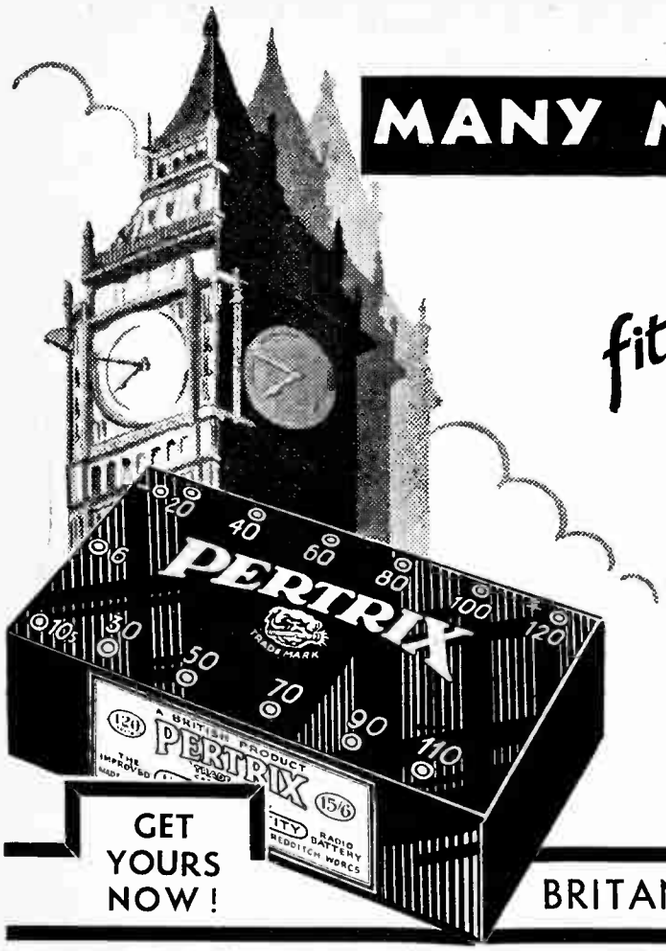

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(See Classified Advt. on page 7)

WEDNESDAY

MAY THE THIRD

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL "The Three Maries," a Cornish miracle play, music by Leslie Woodgate. "Die Walkure" (Wagner), Act 3, from Covent Garden.

LONDON REGIONAL A relay from the Palace Theatre, Huddersfield.

MIDLAND REGIONAL "Send Her Victorious," a comedy, by Philip Johnson, from the Repertory Theatre, Birmingham.

NORTH REGIONAL Running commentary on the Chester Cup.

WEST REGIONAL Welsh programme from Bangor.

BELFAST String orchestral concert.

ABROAD

BRUSSELS (No. 1) 8 p.m. "The Passion," lyric drama (Dupuis), from Verviers.

LEIPZIG 10.15 p.m. The Dresden Philharmonic Orchestra, conducted by W. Steffen.

MORAVSKA-OSTRAVA 6.25 p.m. Pianoforte recital of Chopin's and other Polish music.

OSLO 8.1 p.m. The Station Orchestra, conducted by H. Kramm.

PRAGUE 8.15 p.m. Concert in honour of the Foundation of the Polish Republic.

STRASBOURG 8.45 p.m. The Soudant Concert Society from the Conservatoire, Metz.

STUTTGART 7 p.m. "The Swabian Alps" (relayed by other German stations).

TOULOUSE 7.30 p.m. Opera music and violin recital.

WARSAW 8 p.m. Concert of Polish music, conducted by Fitelberg.

ATHLONE

725 kc/s, 413 metres; 60 kW., and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Gramophone Concert. **6.0,** Programme for Children. **6.40,** News and British Market Report. **7.0,** Gaelic Talk. **7.15,** German Lesson. **7.30,** Music by the Station Orchestra. **8.0,** Pianoforte Solos by Douglas Ffrench-Mullen. **8.20,** Quiristers Male Voice Quartet. **8.30,** Music by the Station Orchestra. **8.55,** Vocal Quartet. **9.15,** Two Musical Evenings: 1903 and 1933—presented by Fay Sargent and Co. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report and Close Down.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Concert. **8.30,** Exchange Quotations. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations and Market Prices. **10.5,** Concert by the Station Orchestra. **10.30,** Modern Dance Music. **11.15,** Concert by a String Orchestra: Jubel-Ouverture (Weber); Violin Solo: Romance in G (Beethoven); Aquarelles valenciannes (Chavarri); Serenade (Elgar); Concerto grosso (Handel); Carnival from the First Suite (Guiraud). **12 Midnight** (in an interval), News. After the Concert, Variety Music on Gramophone Records. **1.0 a.m. (Thursday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Notes, Tourist Talk, and Dopolavoro Announcements. **8.20,** Giornale Radio and News. **8.30,** Time Signal and Announcements. **8.35** (approx.), Concert of Chamber Music; Soloists: Giacomo d'Amacco (Tenor), M. De Santis (Soprano), and Donato Marrone (Pianoforte): Overture, Cosi fan tutte (Mozart); Tenor Solo, Serenade (Van Westerhout); Soprano Solo: Stizzoso, mio stizzoso (Pergolesi); Pianoforte Solos: (a) Wiegenlied (Grieg), (b) Piece (Godard); Gavotta tenera (Papantti); Tenor Solo, A vucchella (Tosti); Soprano Solos: (a) Lo spillo (Delle Cese), (b) Romance (Giannini); Pianoforte Solos: (a) La promessa (Rossini-Liszt), (b) La danza (Rossini-Liszt); Overture, The Secret Marriage (Cimarosa); Tenor Solo: Der Wanderer (Schubert); Soprano Solo: Canzone di maggio (Pesce); Pianoforte Solos: (a) Promenade nocturne (Turina), (b) Fête maure en Tangiers (Turina); Old-fashioned Minuet (Tartarini); Tenor Solo: Stornello (Pini Corsi); Soprano Solos: (a) Nel cor più non mi sento (Paisiello), (b) Vergebliches Ständchen (Brahms); Pianoforte Solo: Scherzo, Op. 20 (Chopin). In the interval, Talk: The Wheel of Fortune. **10.30,** Light Music on Gramophone Records. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**7.0 p.m.,** Folk Songs. **7.30,** Talk. **8.10,** Recital of Operatic Arias by M. Boris Popov. **8.40,** Radio Play. **9.10,** Hawaiian Trio Concert of Folk Songs and Dances. **9.40,** News Bulletin and Concert by the Station Orchestra. **10.50,** Dance Music on Gramophone Records.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**2.0 p.m.,** Gramophone Concert from **Berlin (Witzleben). 3.0,** Programme for Children. **3.30,** Weather and Exchange. **3.45,** Reading (Georg Rendl). **4.0,** Talk: The Patriotic Spirit in Germany's High Schools. **4.30,** See **Hamburg. 5.10,** Talk for Young People: Young German Workers under the Hitlerite Flag. **5.30,** Talk: Mussolini and Nietzsche. **6.0,** Poetry Reading. **6.5,** Alfred Bortz Song Recital by Agnes Schulz-Lichterfeld: Die kleine Kirche; Chinesisches Liedchen; Durchwachte Nacht; Schwanenlied; Ein Singen hat mich aufgeweckt; Vorfrühling; Wellentanzlied; Haus in allen Gassen. **6.25,** Topical Talk. **6.40,** Wireless Technical Talk. **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations, relayed from **Stuttgart. 8.0,** Concert from **Breslau. 9.0,** Topical Talk. **9.10,** Programme from **Breslau. 10.10,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Programme from **Heilsberg. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**6.0 p.m.,** Johannes von Leers reads from his own Works. **6.20,** Folk Song Recital. **6.45,** Topical Talk. **7.0,** Transmission for all German Stations relayed from **Stuttgart. 8.0,** Bird Songs on Gramophone Records, with Reading (Ruth Schaumann) and Commentary. **8.30,** The Growth of Opera—Musical and Literary Programme arranged by Hans Tessmer and Manfred Gurlitt. The Station Orchestra, conducted by Manfred Gurlitt, and the Station Choir, conducted by Maximilian Albrecht. **9.30,** Pianoforte Quintet in C, Op. 23 (Pfitzner). **10.5,** Weather, News and Sports Notes, 10.15 (approx.), Dance Music. **12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**5.10 p.m.,** Concertanto for Clarinet and Pianoforte (Weber). **5.35,** Talk for Children. **5.45,** Gramophone Records for Children. **5.55,** Hungarian Programme: First of May Celebrations. **6.55,** News. **7.0,** See **Prague. 7.25,** Programme in Honour of General Stefanik on the Fourteenth Anniversary of his Death. **8.15,** See **Prague.** 10.15 (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW., and **Gleiwitz, 1,184 kc/s, 253 metres.—1.5 p.m.,** Weather for Farmers. **1.7,** Song Recital on Gramophone Records. **1.45,** Time, Weather, News and Exchange. **2.5,** Wagner Opera Music on Gramophone Records. **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Book Review. **4.0,** Educational Talk. **4.30,** Flute and Guitar Recital by Wilhelm and Else Wilsch: Serenade (Küffner); Original Fantasie, Op. 43 (Demerssemann). **5.0,** Talk: Our Mothers. **5.20,** Agricultural Prices. **5.25,** Brahms Pianoforte Recital by Johanna Koehl: Ballade in D Minor, Op. 10; Rhapsody in E Flat, Op. 119. **5.40,** Talk: A Journey through Upper Silesia. **6.0,** Arnold Mendelssohn Concert by the Ratibor Double Quartet, conducted by Hans John. Soloists: Gretel Dostal (Soprano), Willi Wunderlich and Karl Kraiczek (Violins). **6.35,** Talk: Air Traffic in Upper Silesia. **6.50,** Weather for Farmers, News and Meat Market Prices. **7.0,** Transmission for all German Stations, relayed from **Stuttgart. 8.0,** Concert by the Station Orchestra, conducted by Franz Marszalek. Soloist: Hans W. Bachmann (Baritone). **9.0,** News. **9.10,** Hab' mein Wagen vollgeladen . . . Radio Play (Otto Thiemer), with Incidental Music by Friedrich Wirth. **10.10,** Time, Weather, News, Sports Notes and Programme Announcements. **10.30,** Talk: A Visit to the Breslau Doss Houses. **10.50,** Dance Music, relayed from **Berlin (Witzleben). 12 Midnight,** Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**5.10 p.m.,** Marionnette Play for Children. **6.5,** Review of Periodicals. **6.15,** Talk for Workers: Gymnastics. **6.25,** German Transmission: News, Medical Talk, and Talk on Modern Schools. **7.0,** See **Prague. 7.10,** Literary Talk. **7.25** See **Bratislava. 8.15,** See **Prague. 10.30** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Concert, conducted by André Felleman, relayed from the Grand Hotel, Antwerp. **1.0 p.m.,** Journal Parlé. **1.10,** Concert by the Symphony Orchestra, conducted by Jean Kumps: Overture, The Barber of Seville (Rossini); Entr'acte from Mignon (Thomas); Intermezzo from Cavalleria rusticana (Mascagni); Le pas des fleurs (Delibes); Slav Dance from Le roi malgré lui (Chabrier); Romance from Thaïs (Massenet); Ballet Music from Faust (Gounod). **5.0,** Concert by the Radio Orchestra, conducted by Charles Walpot: March, France (Paradis); Waltz from Faust (Gounod); Overture, Les Saltimbanques (Ganne); Bruissement sous bois (Razigade); Scènes pittoresques (Massenet); Aubade printanière (Lacôme); Gracieux babil for Oboe (Petit); Ballet Music from Isoline (Messager). **6.0,** Talk: Walks in Belgium. **6.15,** Bach Song Recital by M. Feremans. **6.30,** Gramophone Records. **6.45,** 'Cello Recital by Jeanne Fremont Delune. **7.15,** Religious Address. **7.30,** Medical Talk. **8.0,** The Passion—Musical Drama (Albert Dupuis), relayed from Verviers. In the intervals at **8.45,** Reading of Poems on Flowers by Ronsard, Lamartine, and others; at **9.40,** Gramophone Records; at **10.35,** Le Journal Parlé; and at **10.45,** Gramophone Records. **11.25** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—**12 Noon,** Concert by the Symphony Orchestra, conducted by Jean Kumps: Overture, Preciosa (Weber); Humoresque for Wind Instruments (Gilson); Sérénade de Torcello (Gilson); Dance of the Hours, from La Gioconda (Ponchielli); Romance in F (Rubinstein); Petite Suite (Ducasse). **1.0 p.m.,** Journal Parlé. **1.10,** Concert conducted by André Felleman, relayed from the Grand Hotel, Antwerp. **5.0,** Concert by the Symphony Orchestra, conducted by Jean Kumps: Overture, Fingal's Cave (Mendelssohn); Three Symphonic Fragments from Le Flibustier (Cui); Andante and Scherzo (Tchaikovsky); Ballet Music from La Korrigane (Widor). **6.0,** Suite bergamasque (Debussy), on Gramophone Records. **6.15,** Talk: Teacher and Parent. **6.30,** Song Recital by Sonja Kovalefskaten Kate (Contralto): Air from the Mass in C Minor (Bach); Die Allmacht (Schubert); Vergebliches Ständchen (Brahms); Der Gärtner (Wolf); Einsame Nacht (Voormolen); Melody (Rimsky-Korsakov); Hebrew Song (Mussorgsky); Hopak (Mussorgsky). **7.0,** Gramophone Records: Air (Berlioz); Fantasia in C Minor for Organ (Bach). **7.15,** Protestant Address. **7.30,** Talk; Foreign Events. **8.0,** Concert by the Station Orchestra, conducted by C. Walpot. Soloist: Harry Collin (Tenor). Egyptian March (Joh. Strauss); Waltz from Gipsy Love (Lehar); Overture, Orpheus in the Underworld (Offenbach); Songs, Kalman Operetta Potpourri; Overture, The Barber of Seville (Rossini); Waltz, Estudiantina (Waldteufel); Selection from La Bohème (Puccini); Songs; Ballet Music from Romeo and Juliet (Gounod); March, Sambre et Meuse (Planquette). In an interval at **8.45,** Recitations. **10.0,** Journal Parlé. **10.10,** Gramophone Concert of Dance Music.

BUCHAREST

751 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert of Light Music. **6.10,** Radio Journal. **6.15,** Concert (contd.). **7.0,** Talks. **7.40,** Gramophone Concert of Light Music. **7.55,** Time Signal. **8.0,** Pianoforte Recital by Madame Olga Bernart. **8.30,** Reading. **8.45,** Pianoforte and 'Cello Recital: Sonata in A (Pergolesi); Adagio from Toccata (Bach); Kol Nidrei (Bruch); Allegro appassionata (Saint-Saëns). **9.15,** Clarinet Recital. **9.45,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **7.0 p.m.** till Close Down.—**5.30 p.m.,** Concert by the Railwaymen's Musical Association. **6.30,** Italian Lesson. **7.0,** Concert by the Budapest Concert Society, conducted by F. Friedl: Selection from Lucia di Lammermoor (Donizetti); Selection from La Traviata (Verdi); Selection from La Bohème (Puccini); Melodies from Manon Lescaut (Puccini). **7.45,** Talk on the Archduke Albrecht. **8.0,** A Play (Paul Geraldy). **10.10,** News. **10.20** (approx.), Concert by the Patria Orchestra and the Bela Bodrics Cigány Band, relayed from the Café Patria: Romantic Overture (Keler-Bela); Waltz Song (Saphir); Potpourri (Morena); Intermezzo, In a Moroccan Harem (Nagypal); Waltz, España (Waldteufel).

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW., and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Concert by the A. Bendix String Ensemble, relayed from the Wivex Restaurant. **2.0 to 3.0 p.m.,** Interval. **3.0,** Gramophone Concert: Enrico Caruso: Aria from La Juive (Halévy); Lotte Schöne and Willi Domgraf-Fassbaender: Duet from Act I of Don Pasquale (Donizetti); Riccardo Stracciari: Aria from Act II of Il Trovatore (Verdi); Bronislaw Hubermann: Air on the G String (Bach); Sven-Olof Sandberg: The Tango Cavalier (Sylvain); Greta Keller: I'll never have to dream again (Newman and Jones); Gracie Fields: Balloons (Shawn and Magine). **3.30,** Concert. In an interval at **4.15** (approx.), Talk for Women. **5.40,** Exchange and Fish Market Prices. **5.50,** Talk: French Drama in the Eighteenth Century. **6.20,** French Lesson. **6.50,** Weather. **7.0,** News. **7.30,** Agricultural Talk. **8.0,** Time Signal from the Town Hall. **8.1,** Concert by an Unemployed Musicians' Orchestra, relayed from the Oddfellow's Hall: Introductory Talk; Overture, The Little Match Girl (Euna); Danish Songs; Prelude to Act II of Die Königskinder (Humperdinck); Duet and Waltz from Hansel and Gretel (Humperdinck); Suite, The Three Bears (Coates). **9.15,** Talk on Politics. **9.45,** Russian Songs on Gramophone Records. **9.55,** Recital of Danish Lyrics (Emil Aarestrup). **10.10,** News. **10.25,** Concert of Old Spanish Music by the Radio Orchestra, conducted by Emil Reesen: Danzas fantasticas (Turina); Symphony in D (Halffter); Pieces from the Suite, Iberia (Albeniz). **11.10,** Dance Music by the Kai Julian Band, relayed from the National Scala. **11.45,** Programme in Aid of the Martinius Nielsen Memorial Fund, relayed from the Dagmar Theatre.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**12 Noon,** Gramophone Concert of Light Music. **12.30,** News. **12.45,** Concert of Opera and Operetta Music. **5.30 to 7.0,** Programme in English by the I.B.C. **5.30,** Orchestral and Vocal Concert for Portsmouth and Southsea Listeners: Waltz Favourites; Songs; (a) Cuban Love Song, (b) One Morning very early; Pianoforte Solo; Selection from The Cat and the Fiddle; Song, Only a Rose; Old Time Memories; Songs: (a) Little Brown Owl, (b) When the House is asleep; Pianoforte Solo: One Night alone with you; Song, Song of the Vagabonds; Cheer up, Good Times are coming. **6.15,** Trio Concert for Isle of Wight Listeners: Un peu d'amour (Silesu); Friend o' mine (Sanderson); Violin Solo, Larghetto (Weber); Chanson triste (Tchaikovsky); Violin Solo, The Song of Songs (Moya); Narcissus (Nevin); Cavatina (Raff); Violin Solo, Valse Bluette (Drigo); Pizzicato from Sylvia (Delibes); Toreador et Andalouse (Rubinstein); Selection from Cavalleria rusticana (Mascagni). **7.0,** Radio Gazette. **7.20,** Local News. **7.30,** The Listeners' Half-hour and News. **8.15,** Variety Items. **8.30,** Concert. **9.0,** Concert of Light Music, relayed from **Dieppe. 10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music by

SUN.MON.& TUES. PROGRAMMES

MAY 3rd **WEDNESDAY** *continued*

the Ibcolians; Two Little Blue Little Eyes; That's when I learned to love you; I love you, believe me I love you; Gipsy Dream Rose; My heart belongs to the Girl who belongs to somebody else; The Moon is Low; Beside an Open Fireplace; Kitty from Kansas City; Reminiscing; My Cigarette Lady; I still remember; It must be you; Mary, I love you; If I had a Girl like you; Just a little closer. **11.0,** Club Concert for Richmond and Ripon Listeners; Valse Marguerita; Valencia (Padilla); The Yeoman's Wedding (Poniatovsky); Paree (Padilla); The Smuggler's Song (Mortimer); Little Old Church in the Valley; The Battle of Waterloo (Eckersberg); I need you more Each Day; Wid de Moon, Moon, Moon (Cook); Festival of Empire (arr. Rogan); O dem Golden Slippers (Bland); Potpourri of Wilfred Sanderson's Songs; Jungle Drums (Ketelbey). **12 Midnight,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: Orchestra: (a) Pan and the Wood Goblins (Rathke), (b) Mason's Apron Reel; Songs: (a) I hear you calling me, (b) Songs of Araby (Clay); Orchestra: Dwarf's Patrol (Rathke); Songs: (a) Songs my Mother taught me (Dvorak), (b) The Love Dream; Rakes of Clonmel Jig. **12.30 a.m. (Thursday),** Military Band Concert: The Crusader March (Sousa); Ca c'est Paris (Padilla); The Gladiators (Sousa); Loin du Bal (Gillet); Sir Roger de Coverley; For Valour; Highland Fling; Sailor's Hornpipe; Returning Home. **1.0,** Banjo Solos and Vocal Duets: Medley of Popular Airs; Heather Bloom; The Buffoon; The Wedding of the Painted Doll; Vocal Duets: (a) Sweet Adeline, (b) Sweeping the Clouds away; Three Little Words (Check); Faust Medley. **1.30,** Vocal Duets and Accordion Solos: A Dicky Bird told me so; I must be dreaming; Let's dream a little longer; Accordion Solo, Lorentina; In the Lane of Sweet Dreams; Sally of my Dreams; Why? Accordion Solo, Festival March. **2.0,** Dance Music by the Ibcolians: Mimi; I don't want to go to Bed; My Romance; Lying in the Hay; Dreaming; Old Mother Hubbard; Yes, Mr. Brown; Please; Love is the Sweetest Thing; Sweet Muchacha; The Juggler; Let's all sing like the Birdies Sing; What would happen to me? Mariette. **2.57,** I.B.C. Good-night Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—**6.25,** Topical Talk. **6.50,** Time, Programme Announcements, Weather and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Stuttgart. 8.0,** The Reformation in Frankfurt—Radio Sequence (Hans Heimel). **8.45,** A German Almanac. **9.0,** Brahms Concert by the Station Orchestra, conducted by Reinhold Merten; Soloist: Georg Kniestädt. **10.15,** Time, News, Weather and Sports Notes. **10.45,** See **Munich.**

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse). **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—**4.30 p.m.,** Concert by the Hamburg Philharmonic Orchestra, conducted by José Eibenschütz: Academic Festival Overture (Brahms); Spring (Grieg); Suite, From Pan's Domain (Graener); Theme and Variations from the Third Suite (Tchaikovsky); Traumwalzer, from Der Feldprediger (Millöcker). **5.30,** Reading in North German Dialect from the Works of Carl Munzel. **5.55,** De Mailhöge—an Historical Radio Play in German Dialect (Carl Budich). **6.40,** Frankfurt Exchange and Hamburg Market Prices. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Stuttgart. 8.0,** Handicrafts—Choral and Orchestral Concert; Soloists, Käte Wittenberg (Recitations), Hans Grahl and Bernhard Jakschtat (Songs), and Kurt Gerdes (Recitation); Aria from The Mastersingers (Wagner); Address by Senator Bartholatus; Talk on Handicrafts; Recitation, Der güldene Ring (Scherenberg); The Cobbler's Song from The Mastersingers (Wagner); Recitation, Der Dorfschmied (Lienhard); Song of the Forge, from Siegfried (Wagner); Recitation, Zimmerspruch (Uhland); Song, Richtspruch (Homola). **9.0,** News. **9.10,** The Hundred Days—Play in Three Acts (Benito Mussolini and Giovacchino Forzano). **10.20,** Time and News. **10.30,** Topical Talk. **10.40** (from **Hanover),** Concert of Light Music and Dance Music.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.**—**1.5 p.m.,** Gramophone Concert: Prinz-Eugen-Marsch (Strauss); Jubiläums-Marsch (Böttge); Overture, Le carnaval romain (Berlioz); Poème (Fibich); Unter Zypressen (Brecht); Herbststimmung (Lincke); Tesoro mio (Becucci); Ein lustiger Teufel (Weiss-Ferdl); Potpourri (Dostal); Two Songs for Tenor (Strauss): (a) Komm in die Gondel, (b) All mein Glück bist du allein; Canzonetta—for Soprano, Choir, and Orchestra (Tchaikovsky); Potpourri, Echo der welt (Zimmer); I tuoi occhi (Bonincontro); Appassionatemento (Rulli). In the interval at **1.20,** News. **2.30,** Programme arranged by the Post Office, with Gramophone Records. **3.0,** Agricultural Market Prices. **3.20,** Hints for the Housewife. **3.30,** Programme for Children. **4.0,** Talk, with Demonstrations: Music Teaching in Schools. **4.30,** See **Hamburg. 5.45,** Bridge Lesson. **6.15,** Market Prices. **6.25,** Talk: Gymnastics for Elderly People. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Stuttgart. 8.0,** News. **8.10,** Hans Pfitzner Concert by the Königsberg Opera House Orchestra, conducted by Ludwig Leschetizky; Soloists, Ruth Schöbel (Soprano); Dr. Erwin Ross (Bass); Introductory Talk; Symphonic Trilogy from Von deutscher Seele to Text by Eichendorff—for Full Orchestra: Overture to and Song from Das Christelflein; Three Preludes to Palestrina; Die Heinzelmännchen—for Bass and Orchestra. **9.25,** Leo Guttmann reads from his Collection Meine Erde. **10.0,** News. **10.10** (approx.), Concert by the Small Station Orchestra, conducted by Eugen Wilcken; Overture, Das Nachtlager in Granada (Kreutzer); Suite No. 2 (Micheli); Kaiser-Walzer (Joh. Strauss); Ein Schubertabend in Alt-Wien (Ralf); Selection from Der Freischütz (Weber); Overture, Lysistrata (Lincke). **12 Midnight,** Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—**12.40 p.m.** till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). **12.40 p.m.,** Concert by the Little V.A.R.A. Orchestra, conducted by Hugo de Groot. **1.25,** Organ Recital by Johan Jong: Selection from The Bohemian Girl (Balfe); Valse triste (Berger); Atlantide (Robrecht); Selection from The Dollar Princess (Fall). **1.55,** Orchestral Concert (contd.): Two French Dances (Lully); Spanish Waltz (Metra); Andante des fleurs (Ganne); Parade galante (Ganne); Selection from Milenka (Blockx); Die letzte Liebe (Gungl). **2.25,** Interval. **2.40,** Programme for Women. **3.40,** Programme for Children. **6.10,** Concert by the Amsterdam Chamber Orchestra, conducted by D. Kiekens: Kleiner Wiener Marsch (Kreisler); Overture, Morning, Noon and Night (Suppé); The Beyadere (Waterman); Catalonian Serenade (Niemann); Impressions of Madagascar (Landeroin); Waltz, Roses from the South (Joh. Strauss); Three Romantic Pieces (Nael); Suite, Hyde Park (Jalowicz). **7.10,** R.V.U. Programme. **7.40,** Talk. **7.55,** Brahms Concert by the Vox Jubilans Women's Choir, conducted by F. Uyttenboogaard; Soloists: P. v. d. Heuvel (Cornet), H. Krete (Cornet), Mme. Lijsen-Fentsch (Harp), and Mme. Mulder v. d. Weerdt (Pianoforte); Weg der Liebe; Wer der Liebe; Das Meer; Waltz; Es tönt ein voller Harfenklang; Shakespeare Song; Der Gärtner; Song; Capriccio, Op. 76; Ave Maria; Berceuse, Op. 49, No. 4; Der Bräutigam; Fragen. **8.40,** S.O.S. Messages. **8.42,** Play (Holländer). **10.10,** Variety Music on Gramophone Records. **10.25,** Concert by the V.A.R.A. Orchestra, conducted by Hugo de Groot: Overture, Banditenstreiche (Suppé); Romantic Suite (Bullerian); Prelude (Rachmaninov); Melody (Rubinstein); Entry of the Guests into the Wartburg, from Tannhäuser (Wagner). **11.10,** News Bulletin. **11.25,** Orchestral Concert (contd.): Wenner Mädeln (Ziehrer); Souvenir de Bitolia (Karastnoyanov); Der Rosenhochzeitszug (Jessel); Cœur brisé (Gillet); Babillage (Gillet); Balgeflüster (Helmund); Song (Weyts). **11.55,** Concert by De Fliereffluiters.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**11.40 a.m.** till Close Down, Programme of the Christian Radio Society (N.C.R.V.). **11.40,** Song Recital by R. Dijs-Ochel (Contralto). **12.40 p.m.,** Police Report. **12.55,** Popular Music on Gramophone Records. **1.10,** Concert by the Horst Trio; Soloist: T. G. v.d. Haar (Violin): Overture, Le roi d'Yvetot (Adam); Waltz, Estudiantina (Waldteufel); Selection from Light Cavalry (Suppé); Turkish Suite (Gauwin); Noch sind die Tagen der Rosen (Mannfred); Gramophone Records; Overture, Heimkehr aus der Fremde (Mendelssohn); Canzone napoletana (Campoli); Selection from Werther (Massenet); Selection from The Rose of Stamboul (Fall). **2.40,** Agricultural Talk. **3.25,** Interval. **3.40,** Religious Address. **4.10,** Instrumental Concert. **5.40,** Programme for Children. **6.40,** Organ Recital. **7.10,** Talk. **7.40,** Police Report. **7.55,** Ecclesiastical Notes. **8.10,** Popular Music on Gramophone Records. **8.25,** Talk. **8.40,** Religious Addresses and Choral Music, relayed from the Baptist Church, Haarlem. **10.10,** News and Popular Music on Gramophone Records. **10.25,** Concert by the Amsterdam Chamber Orchestra, conducted by P. Kiekens: Overture, The Barber of Seville (Rossini); Poupée valsante (Poldini); Grieg Erinnerungen (Urbach); A Japanese Carnival (de Basque); Gramophone Records; Chant russe (Lalo); Selection from Don Giovanni (Mozart-Schreiner); Torch Dance of the Brides of Kashmir (Rubinstein); March, Tempo-Tempo (Schootmeyer). **11.40,** Popular Music on Gramophone Records. **12.10 a.m. (Thursday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News, Financial Notes and Racing Results. **8.10,** Music Review. **8.20,** English Lesson. **8.40,** Popular Concert. **9.0,** Weather Report and News Bulletin. **9.15,** Radio Concert. **12 Midnight to 1.0 a.m. (Thursday),** Programme arranged by the International Broadcasting Company of London, H. K. Hitchcock announcing. **12 Midnight,** Military Band Concert: The Changing of the Guard (Flotsam and Jetsam); The Bullfighters' March (Kattoun); Carry on (Dungas); Post Horn Gallop (Koenig); Le Rêve passe (Krier); March, King Cotton (Sousa); Medley of British Songs; National Emblem March (Bagley). **12.30,** Dance Music: I may never pass you Way again; I called to say; Till to-morrow; Streets of Dreams; Young and Healthy; Butterflies in the Rain; The Japanese Sandman; Love will find a way, from The Maid of the Mountains (Fraser-Simpson). **12.57,** I.B.C. Good-night Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12.50 p.m.,** Weather, Time, and News. **1.0,** Concert, conducted by Eysoldt; Soloist: Lisa Heck (Soprano). In the interval at **2.0 p.m.,** News. **2.30** to **3.15,** Sponsored Programme with Gramophone Records. **3.30,** Economic Notes and Time. **3.50,** Programme for Children. **4.30,** Concert of German Chamber Music; Else Müschenborn (Pianoforte), Florentine Hanisch (Violin); Walter Rütschle (Cello), Selma Lindenberg (Mezzo-soprano), and Toni Breuer (Flute); Sonata for Violin and Pianoforte (Albinoni); Sonata No. 2 for Violin, 'Cello, and Pianoforte (Birckenstock); Easter Song for Voice, Violin, Flute, 'Cello, and Pianoforte, Jauchzet Gott (Weiland); Pianoforte Solo: Kleine Fuge (Telemann); Pastorale for Flute, 'Cello, and Pianoforte (Vivaldi); Trio Sonata for Flute, Violin, 'Cello, and Pianoforte (Steffani); Cantata for Voice, Flute, 'Cello, and Pianoforte, the Völker hörst (Telemann). **5.45,** Agricultural Talk. **6.0,** Talk; German Spas in the Crisis. **6.20,** Talk: Industrial Education. **6.45,** Weather, Time, Economic Notes, and Sports Report. **7.0,** Transmission for all German Stations, relayed from **Stuttgart. 8.0,** News. **8.5,** The Wonderful Love Story of the Fair Magelone (Ludwig Tieck), with Songs by Brahms, arranged for the Radio by Paul Heinrich Gehly. **9.10,** Concert by the Station Orchestra, conducted by Buschkötter; Soloists: Johannes Strauss (Pianoforte) and Florizel von Reuter (Violin); Scottish Rhapsody (Reuter); Symphonic Rhapsody (Reger-Reuter); Pianoforte Concerto in A (Mozart). **10.15,** News and Sports Notes. **10.35,** Serenade, conducted by Wolk. **12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**12 Noon,** Weather and Time Signal. **12.5 p.m.** (approx.), Concert: Prelude to Eva (Lehár); Waltz, Hereinspaziert (Ziehrer); Butterfly Waltz (Friml); Potpourri of Johann Strauss Operetta Music (Ludwig Schlögel); Intermezzo, Im Liebesgarten (Hartung); Barcarolle, Moonlight Night in Venice (Fritz Brase); Song, Zu Rüdesheim in der Drosselgass (Hermann Krome); Selection from Frau Luna (Lincke); Romance in C for Violin (Svendsen); Descriptive Piece, Liliputanergarde (Carl Zimmer); Spanish Waltz, Serenade (Metra); Waltz, Königskinder (Hans Löhr); Song, Am Rhein (Humperdinck); Descriptive Piece, Frog Parade (Hugo Krützfeld); March, Regimentskamaraden (Richter). In the interval at **1.0 p.m.,** News, Weather, and Time. After the Concert: Exchange Quotations. **2.0** to **2.15,** Talk for the Unemployed. **3.35,** Market Prices. **4.0,** Hansemanns erste Schulerlebnisse—A Sequence for Young People (Herbert Roth); Music by Curt Beilschmidt. **5.10,** Illustrated Talk: German Folk Dances. **5.50,** Exchange, Weather, and Time Signal. **6.0,** Review of Books. **6.20,** Talk. **6.45,** Programme to be announced. **7.0,** Transmission for all German Stations, relayed from **Stuttgart. 8.0,** Paul Hofmann reads Ludwig Richter's Life of a Painter. **8.30,** Programme to be announced. **10.5,** News. **10.15** (approx.), Concert in commemoration of Sigfrid Karg-Elert (Died April 9th, 1933). The Dresden Philharmonic Orchestra, conducted by Willy Steffen. Soloists: Eva Graf (Soprano) and Friedbert Sammler (Harmonium). Extracts from Stimmen der Nacht, for Orchestra; Extracts from the Idylls, for Harmonium, Op. 104; Three Songs for Soprano: (a) Schlafe, mein Kind, (b) Mein Kindchen ist fein, (c), Träume; Kammersinfonietta in A for Five Solo String Instruments, Four Solo Wind Instruments, and String Orchestra, Op. 141. **11.30** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**5.0 to 5.30 p.m.,** Programme in English by the I.B.C. International Broadcasting Club Concert: On the Mall; Honest, really, truly; Duet, When it's Moonlight in Killarney; Poschalei; Thunder and Blazes; Three little Times; Duet: I travel the Road; Czardas. **5.30,** Readings. **6.0,** Popular Music on Gramophone Records. **6.30,** Recital of Children's Songs. **7.0,** Russian Lesson. **7.30,** Literary Programme. **8.0,** Talk on Music. **8.30,** Spring—Quintet Concert. **9.30,** Time and News. **9.50,** Light Music on Gramophone Records. **10.30** (approx.), Close Down.

LWOW

788 kc/s, 381 metres; 16 kW.—**7.0 p.m.,** Historical Talk. **7.15,** Miscellaneous Items. **7.25 to 10.40,** See **Warsaw.** In the interval, Sports Notes. **10.40,** Historical Talk. **10.55,** See **Warsaw. 12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**9.0 p.m.,** Chimes, Exchange Quotations, Radio Journal and Request Gramophone Records. **9.25,** News Bulletin and Political Review. **9.30 to 10.30,** Interval. **10.30,** Chimes, Time Signal, Political Review and a Radio Play. **12.45 a.m. (Thursday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**4.10 p.m.,** Concert of Light Music by the Station Orchestra, conducted by V. Musil: Overture, Carmen (Bizet); Suite, Rossiniana (Rossini-Respighi); Bagatelle (Suk); Waltz, Künstlerleben (Joh. Strauss); Potpourri of Polish Songs, Polonia (Leopold); Slovak Dance (Smatek). **5.0,** Historical Sketch. **5.10,** See **Brno. 6.5,** Meat Market Prices. **6.10,** Light Music on Gramophone Records. **6.15,** Talk for Workers: Rationalisation. **6.25,** Pianoforte Recital of Polish Music: Ballade in A Flat (Chopin); The Spinner (Moniuszko-Melcer); Two Mazurkas (Chopin); Impromptu (Zarembski); Waltz in C Sharp Minor (Chopin); Etude in B Flat Minor (Szymanowsky); Scherzo (Chopin). **7.0,** See **Prague. 7.25,** See **Bratislava. 8.15 to 10.15,** See **Prague. 10.15** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—**4.45 p.m.,** Concert by the Station Orchestra, conducted by Karl List. Soloists: Renate von Aschoff (Soprano) and Hermann Hoenes ('Cello). Academic Festival Overture (Brahms); Arias: (a) Kommt ein schlanker Bursch gegangen, from Der Freischütz (Weber), (b) Bin ein schlichtes Kind, from Der Wildschütz (Lortzing); Concerto for 'Cello and Orchestra (Moser); Largo (Haydn); Suzanne's Aria from Figaro (Mozart); Finale from the First Symphony (Beethoven). **5.50,** Spring Time in the Palatinate—Programme relayed from Kusel. Talk: The Palatinate and her People. Reading of Pauline Königs Poems on her Sixty-Fifth Birthday. **6.25,** Time, Weather and Agricultural Notes. **6.35,** Talk: The First German Empire. **7.0,** Transmission for all German Stations, relayed from **Stuttgart. 8.0** (from **Nürnberg**), Military Band Concert. **9.0,** The Lord Chancellor (Hardenberg)—Radio Play (Richthofen). **10.20,** Time, Weather, News and Sports Notes. **10.45,** Serenade, conducted by Erich Kloss. **12 Midnight** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**5.15 p.m.,** Pianoforte and Song Recital by Mme. Liv Wesenberg and M. Henry Alf (Baritone): Baritone Solos: (a) Song (Arlbey), (b) For Thee Alone (Geel), (c) Song of Songs; Pianoforte Solos: (a) Sonata in E Flat (Beethoven), (b) Valse mignonne (Saint-Saëns), (c) Polonaise in E (Liszt); Baritone Solos: Bachanale (Dahl), (b) Aria from The Merry Wives of Windsor (Nicolai), (c) Aria from Martha (Flotow). **6.0,** French Lesson. **6.30** (from **Hamar**), Reading for Boys. **7.0,** Announcements, Weather and News. **7.30,** Talk on Etiquette. **8.0,** Time Signal. **8.1,** Concert by the Station Orchestra, conducted by Hugo Kramm. Soloist: Oscar Holst (Violin). Overture, Figaro

(Mozart); Concerto in G Minor for Violin and Orchestra (Bruch); Suite No. 3 (Tchaikovsky). 9.10, Sponsored Programme. 9.30, Agricultural Report, Weather Forecast and News. 10.0, Topical Talk. 10.15, Readings. 10.45 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Popolavoro Announcements, Tourist Talk, Agricultural Report, and Giornale Radio. **8.20,** Light Music on Gramophone Records. In the interval at **8.30,** Time Signal and Announcements. **8.45,** Variety Concert. **10.0,** Song Recital by Mmes. Rossoni and Pinova (Soprano), MM. Restari and Conti (Tenor): Soprano Solo, Fior di castiglia (Tartarini); Tenor Solo, Piccola vagabonda (Raimondo); Soprano Solo, Finestre (Bixio); Tenor Solo, Fenosta oscura (Pizzaroni); Soprano Solo, Mama yo quiero un novio (Collazzo); Tenor Solo, Arrivederci Mimi (Bonavolontà); Soprano Solo, Giovinezza senza amore (Caslar); Tenor Solo, Quando l'amore vuole (Stolz). **10.55,** News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**6.45 p.m.,** Illustrated Talk on Music. **7.0,** Le Journal Parlé. **7.45,** Programme for Children. **8.20,** Weather Report. **8.30,** Concert, conducted by Edouard Flament. Concerto for Four Violins (Vivaldi); Andante from the First Concerto for Bassoon (Mozart); Larghetto for Horn and Orchestra (Chabrier); Caprice on Danish and Russian Airs for Flute, Oboe, Clarinet and Pianoforte (Saint-Saëns). **9.15,** News Bulletin. **9.30,** Concert (contd.). Minuet from the Septet with Trumpet (Saint-Saëns); Concerto for Double Bass (Handel); Serenade for 'Cello and Viola (Charpentier); Rhapsody in Blue, for Pianoforte and Orchestra (Gershwin). **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.5,** Light Music on Gramophone Records. **8.0,** Insurance Societies' Report. **8.5,** Talk on Economics. **8.15,** Interval. **8.30,** Une Femme de mon Pays—Play in Four Acts (M. E. Guirand). **10.30,** Dance Music relayed from the Lido Restaurant. **11.0,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Educational Talk. **12.15 p.m.,** Concert by the Radio Paris Orchestra: Selection from Le Toréador (Adam). **12.30,** Organ Recital by G. Desserre, relayed from the Gaumont Palace: Indian March (Sellenick); Missourri (Knight); Selection from Faust (Gounod); Foxtrot, Please (Rainger). **1.0,** Exchange, News and Weather. **1.5,** Orchestral Concert (contd.): Selection from Le premier jour de bonheur (Adam); Selection from Hans the Flute-Player (Gaune); Selection from Tip Toes (Gershwin); Selection from La demoiselle du printemps (Goublier Jun.); Selection from Countess Maritza (Kálmán). In the interval at **1.30,** Exchange. **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.40,** German Lesson. **7.0,** Medical Talk. **7.20,** Concert of Waltzes: Roses from the South (Joh. Strauss); La vague (Metra); Soldatenlieder (Gung'l); Waltz from Coppélia (Delibes); Waltz from Dolly (Fauré); Waltz (Schmitt); Romantic Waltz (Debussy). **7.50,** Commercial Prices and News. **8.0,** Literary Readings: Humorous Writers. **8.30,** News and Weather. **8.40,** Fashion Review by Mlle. José. **8.45,** Chamber Music Concert. Soloists: Madeleine Peltier (Pianoforte) and Roger Boulné ('Cello). String Quartet (Ravel); Pianoforte Solos: (a) In the Gardens of Murcia (Turina), (b) The Road to the Alhambra (Turina), (c) The Juggler (Toch), (d) Gitanerias (Infante); 'Cello Solos: (a) Serenade (Barodin), (b) Elegy (Akimenko), (c) Slav Caprice (Scharwenka); Concerto for Violin, Pianoforte and String Quartet (Chausson). In the interval at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ANNOUNCING STATION (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**7.30 p.m.,** Health Talk by Dr. Royal S. Copeland. **7.35,** KDKA Home Forum. **7.45,** Utility Hall Programme. **8.0,** Betty and Bob, from **New York.** **8.15,** Radio Troubadours, from **New York.** **8.45,** Microphone Melody Makers. **9.0,** Teaberry Baseball Scores. **9.5,** Business News. **9.15,** Programme to be announced. **9.30,** Weather Report. **9.32,** Market Reports. **9.45,** Programme to be announced. **10.0,** Teaberry Baseball Scores. **10.5,** Jean and Gene. **10.15,** Dick Daring, from **New York.** **10.30,** The Singing Lady. **10.45,** Little Orphan Annie, from **New York.** **11.0,** Booth Tarkington's Maude and Cousin Bill, from **New York.** **11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** The Musical Horsemen. **11.45 to 12.30 a.m. (Thursday), New York** Relay. **11.45,** To-day's News, by Lowell Thomas. **12 Midnight,** Amos 'n' Andy. **12.15 a.m. (Thursday),** The Townsend Murder Mystery. **12.30,** KD KAlendar of Stars. **1.0 to 3.0, New York** Relay. **1.0,** Eno Crime Clues. **1.30,** Time Signal and Tastyeast Jesters. **1.45,** Phil Cook and the Ingram Shavers. **2.0,** Adventures of Sherlock Holmes. **2.30,** Woodbury Programme, with Morton Downey and Donald Novis. **3.0,** Dr. Curtis Howe Springer.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.0 p.m.,** See **Moravska-Ostrava.** **5.0,** Technical Talk. **5.10,** See **Brno.** **6.5,** Agricultural Talk. **6.15,** Programme for Transport Workers; Why I had an Accident—Radio Sketch. **6.25,** News in German. **6.30,** Two Talks and Labour Market Report. **7.0,** Chimes and News. **7.10,** Talk: Industry and the Worker. **7.25,** See **Bratislava.** **8.15,** Anniversary Programme of the Foundation of the Polish Republic. Polish Music by the Station Orchestra. Address by W. Grzybowski, the Polish Ambassador. In the interval, Reading. **10.0,** Time, News, and Sports Notes. **10.15,** News in French.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.**—**8.0 p.m.,** Concert by the Radio-Suisse Romande Orchestra, conducted by Robert Echenard. **9.10** (from **Geneva**), Pianoforte Recital of Russian Music by Grégoire Gourwitch: Au couvent (Borodin); Prelude in G Minor (Rachmaninov); Waltz from The Christmas Tree (Rebikov); March from The Loves of the Three Oranges (Prokofiev); Pieces (Scriabine): (a) Etude, Op. 2, (b) Etude in C Sharp Minor, Op. 42, (c) Poem in F Sharp Minor, Op. 32, (d) Two Preludes, Op. 11, (e) Three Etudes, Op. 8. **9.30,** News and Weather. **9.40,** Italian-Swiss Programme. Concert by the Civica Filarmonica of Lugano; March, Helvetia (Zanardini); Symphony in C Minor (Foroni); Finale from Act II of The Force of Destiny (Verdi); Symphonic Prelude (Dasseto); Suite from Act IV of André Chenier (Giordano). **10.30** (approx.), Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—**6.0 p.m.,** English Lesson. **6.30,** Talk. **7.0,** Weather. **7.5,** Polish National Festival. Concert, conducted by J. Medins. **8.0,** News. **8.20,** Ballet Music. **9.0,** Weather and News. **9.30,** Extracts from Madame Butterfly—Opera (Puccini).

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.**—**1.10 to 2.15 p.m.,** Orchestral Concert: Melody (Wert); Soavità (Petralia); Sylvan Scenes (Fletcher); Per te (D'Anzi); Fuga degli amanti a Chiogga (Mancinelli); Nocturne (Morena); Melody (Claret); Duet: Aronito (Valdes); Mezzerotte a Venezia (Ranzato); Rapsodia romanesca (Carabella); Canzone e malavita (de Curtis); I casi sono tre (Mariotti). In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Children's Radio Review. **5.10,** Announcements. **5.15,** Exchange, Report of the Royal Geographical Society, and Giornale Radio. **5.30 to 6.15,** Orchestral Concert: Melody (Benatzky); I wapt to Te Yours (Aachen); Carnevale (Mancinelli); Simpaticone (Nervetti); Prendimi son tua (Cortopassi); Pupa di neve (Culotta); Fior d'Andalusia (Malvezzi); Madrigale (Galli); Sempre a mai (Fiaccone). **7.0 (Naples),** Shipping and Sports Notes. **7.10,** Agricultural and Dopolavoro Notes. **7.20,** Giornale Radio. **8.0,** Time, Announcements, and Light Music on Gramophone Records. **8.15,** Medical Talk. **8.30,** Sports Notes and Tourist Report. **8.45,** Relay from a Theatre. In the intervals, Talk and Theatre Notes. **10.55,** News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**9.0 p.m.,** Business and Professional Women. **9.10 to 10.0** (approx.), **New York** Relay. **9.10,** Pop Concert. **9.30,** Texas Cowgirl. **9.45 to 10.0** (approx.), Charis Musical Review. **12.45 a.m. (Thursday),** Stock Reports. **1.0 to 2.30, New York** Relay. **1.0,** Royal Vagabonds. **1.30,** Musical Programme. **2.0,** Band of Famous Brands. **2.15,** Rocking Chair Memories. **2.30,** Musical Programme. **3.0,** Corn Cob Pipe Club of Virginia, from **New York.** **3.30,** Fantasy in Sound from **New York,** followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres,** and **Berne, 1,220 kc/s, 245.9 metres.**—**7.15 p.m.** (from **Zürich**), English Lesson. **7.50** (from **Zürich**), Concert by the Swiss Radio Orchestra. **8.40,** Musical and Literary Programme. **9.30,** Weather and News. **9.40,** See **Radio Suisse Romande.** **10.25** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**5.5 p.m.,** Folk Music, relayed from **Malmo, 1,301 kc/s (231 metres).** **5.25,** Reading. **5.45,** Concert by the Gällivare-Malmberget Orchestra, relayed from **Malmberget, 689 kc/s (436 metres).** Conductor: Micha Pedersen. Symphony No. 39 in E Flat (Mozart); Norwegian Rhapsody No. 1 (Svendsen); Overture, Die Fledermaus (Joh. Strauss). **6.45,** Legal Talk. **7.15,** Weather and News. **7.30,** Talk. **8.0,** Songs and Recitations by Elisabeth Kolmodin-Blom and Margit Andelius. **8.30,** The Key and the Ring—Play (August Brunius). **9.45,** Weather and News. **10.0,** Dance Music on Gramophone Records. **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Variety Music on Gramophone Records. **12.45 p.m.,** News Bulletin. **1.0,** Time Signal. **1.1,** Exchange. **1.5,** Gramophone Dance Music. **2.0,** Festival of Flowers from the Town Hall, relayed from **Toulouse (PTT), 1,175 kc/s (255 metres).** **4.45,** Talk in German: Electricity. **5.0,** Dance Music by the Station Orchestra. **6.0,** Concert relayed from **Lille, 1,130 kc/s (265.4 metres).** **7.0,** Legal Talk in French. **7.15,** Gramophone Records. **7.30,** Time Signal. **7.31,** News Bulletin. **7.45** See **Paris (Eiffel Tower).** **8.15,** Press Review in German. **8.30,** Variety Music on Gramophone Records. **8.45,** Concert by the Sondant Concert Society, relayed from the Conservatoire, Metz: Yvonne Lafond-Meyer (Pianoforte), Victor Avaert (Baritone), and Gabriel Sondant (Violin): Sonata for Pianoforte and Violin (Mozart); Baritone Solos: (a) Aria from Iphigenia in Aulis (Gluck), (b) Plaisir d'amour (Martini), (c) Serenade (Schubert); Violin Solos: (a) Chanson Louis XIII (Couperin-Kreisler), (b) Pavane (Couperin-Kreisler), (c) Tempo di minuetto (Pugnani-Kreisler), (d) Andantino (Martin-Kreisler), (e) La Chasse (Cartier-Kreisler); Baritone Solos: (a) Marine (Lalo), (b) O Star of Eve, from Tannhäuser (Wagner), (c) Pensée d'automne (Massenet); Pianoforte Solos: (a) Au bord d'une source (Liszt), (b) Feux d'artifices (Debussy), (c) Nocturne, Op. 27, No. 2 (Chopin), (d) Rhapsody, No. 11 (Liszt); Baritone Solos: (a) Clair de lune (Fauré), (b) La vague et la cloche (Dupare), (c) Song (Delamy); Violin Solos: (a) Romance (Svendsen), (b) Pièce en forme de Habanera (Ravel), (c) Intermezzo (Lalo). In the interval, Press Review in French. **10.45,** Gramophone Dance Music. **12 Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**12 Noon,** Concert by the Station Orchestra, conducted by Gustav Görlich; Soloist: Gerda Hansi (Soprano): March from The Mikado (Sullivan); Waltz from Gipsy Love (Lehár); Songs: (a) Aria from The Bird Fancier (Zeller), (b) Spiel ich die Unschuld vom Lande, from Die Fledermaus (Joh. Strauss); Selection from The Maid of the Black Forest (Jessel); Oh, dance my little Geisha Gay, from The Geisha (Jones); Nur für Natur, from Der lustige Krieg (Joh. Strauss); Hochzeitslieder - Walzer (Ed. Strauss); March Potpourri, Jung Deutschland (Weninger). **1.15 p.m.,** Time, News, Weather, and Programme Announcements. **1.30 (from Mannheim),** Pianoforte Recital by Lore Melke (Pianoforte): Fantasie Impromptu, Op. 66, in C Sharp Minor (Chopin); Waltz in E Minor (Chopin); Nocturne No. 3, Liebestraum (Liszt). **2.0 to 2.15,** Musical Programme, arranged by the Post Office. **3.0,** Programme for Children. **4.45,** Concert from **Munich.** **5.45,** Time, Weather, and Agricultural Notes. **6.0,** Talk: How to build a House. **6.25,** Talk: The Wars of Liberation in 1813. **6.50,** Time and News. **7.0,** Transmission for all German Stations: The Swabian Alps—Home of the Hohenstaufen and the Hohenzollern Dynasties—Radio Sequence (Martin Lang and Ernst Stockinger), with Music by the Stuttgart Philharmonic Orchestra, conducted by Gustav Görlich, the Station Choir and Soloists. **8.0,** See **Breslau.** **9.0,** Reading. **9.25,** Humorous Bavarian Programme on Gramophone Records. **10.0,** Time, News, Weather, and Programme Announcements. **10.15,** Kreisleriana (Schumann), by Otto Sonnen (Pianoforte). **10.45,** See **Munich.** **12 Midnight,** Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**6.15 p.m.,** Orchestral Concert of Opera Music: Ballet Music from Lakmé (Delibes); Selection from The Barber of Seville (Rossini); Ballet Music from The Damnation of Faust (Berlioz). **6.50,** Instrumental Music: Quartet (Schubert); Extase (Gaune). Talk in the interval. **7.15,** Racing Results, Market Prices, and News. **7.30,** Operetta Music. **8.0,** Violin Recital: Piece in the Form of a Habanera (Ravel); La fille aux cheveux de lin (Debussy); Hungarian Poem (Hubay). **8.15,** Opera Music: Airs from (a) Aida (Verdi), (b) Samson and Delilah (Saint-Saëns); Selection from Don Giovanni (Mozart). **8.30,** Concert of Viennese Music. **9.0,** Mandoline Concert, conducted by Parys. Popular Melodies in the interval. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Music by a Symphony Orchestra: Pavane pour une Infante défunte (Ravel); Selection from The Secret Marriage (Cimarosa); Old Spanish Song (Albert). **11.15,** Opera Music: Prison Scene from Faust (Gounod); Air from La Favorita (Donizetti); Cavatina from Norma (Bellini). **11.30 to 12 Midnight,** Programme in English by the I.B.C., W. Brown-Constable announcing. **11.30,** Hawaiian Concert: Moonlight on the Colorado; Wabash Moon; Pasadena Rose; My Blue Bird was caught in the Rain; Hawaiian Stars are gleaming; Blue Hawaii; La Paloma; My Waikiki Mermaid. **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Thursday),** Pianoforte Recital. **12.15,** Songs. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.10 to 6.10 p.m.,** Instrumental and Vocal Concert; Soloists: Magda Gusberti (Violin), Enrico Martucci (Pianoforte), Mettra Camanzi (Soprano), and Ettore Sigon ('Cello): Sonata in A for Violin and Pianoforte (Handel); Soprano: Eight Scotch Songs, Op. 108 (Beethoven), for Soprano, Violin, 'Cello, and Pianoforte: (a) Selection from The Mastersingers (Wagner), (b) Melody (Rubinstein), (c) Melody (Popper), for 'Cello and Pianoforte. **6.35** till Close Down. See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**5.10 to 6.10 p.m.,** Song Recital. **6.35,** Giornale Radio and Agricultural and Dopolavoro Notes. **7.0,** Time, Tourist Report, and Gramophone Records of Light Music. **7.20,** Giornale Radio. **7.45,** Gramophone Records (contd.). **8.0,** Announcements, Giornale Radio, and Weather. **8.15,** Medical Talk. **8.30,** A Comedy in Three Acts, followed by Light Music on Gramophone Records. **11.0,** Giornale Radio. **11.5 to 11.30 (Florence),** Dance Music Relay.

VATICAN CITY

15,120 kc/s (19.84 metres) (Morning), and **5,969 kc/s (50.26 metres)** (Evening); 10 kW. —**11.0 to 11.15 a.m.,** Religious Information in Spanish. **8.0 to 8.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres.**—**7.0 p.m.,** Recital of Russian and Polish Music by Paul de Conne. **7.35,** Time, Weather and Programme Announcements. **7.45,** Orchestral Concert, conducted by A. Dostal. Soloist: Mimi Brix (Soprano). **8.50,** Readings from the Works of Anton Wildgans. **9.35,** News and Weather Report. **9.50,** Dance Music from the Café Splendide.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Weather Forecast. **12.15,** Concert of Polish Music, relayed from the Philharmonic. In the interval, Talk. **2.0,** Agricultural Talk. **2.20,** Popular Music by the Adam Stromberg Orchestra. **2.40,** Talk: The Crisis and Gardening. **3.0,** Popular Music (contd.). **4.0,** Programme for Children. **4.25,** Light Music on Gramophone Records. **4.45,** Talk. **5.0,** Violin Recital by Mme. Ciniuska: Romance from the Violin Concerto (Karlowicz); Rigaudon (Poplawski); Dumka (Moniuszko-Melcer); Burlesque (Andrzejowsky); Mountain Suite (Maklakiewicz); Tarantella (Wieniawsky); Ballet Music from Harnasie (Szymanowsky-Kochansky); Two Pieces (Zarzycky): (a) Romance, (b) Mazurka. **5.55,** Programme Announcements. **6.0,** Light Music relayed from the Gastronomia Restaurant. In the interval, News. **7.0,** Miscellaneous Items. **7.25,** Dramatic Programme. **8.0,** Concert of Polish Music by the Augmented Station Orchestra, conducted by G. Fitelberg; Soloist, Mme. Zmigrod-Fodyczkowska (Songs). In the interval, Sports Notes. **10.0,** Dance Music relayed from **Katowice, 734 kc/s (408 metres).** **10.35,** Talk in Esperanto, relayed from **Cracow, 959 kc/s (312.8 metres).** **10.55,** Aviation Weather Forecast and Police Notes.

ZURICH.—See **Schweizerischer Landessender.**

THURSDAY
MAY THE FOURTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Three "No" plays of Japan.
LONDON REGIONAL	Variety programme. Orchestral concert.
MIDLAND REGIONAL	Orchestral concert, the music of Dorothy Atkinson.
NORTH REGIONAL	Orchestral concert.
WEST REGIONAL	Concert from the Pump Room, Bath.
SCOTTISH REGIONAL	The Foundations of Scottish Poetry: Dunbar.
BELFAST	"The Army" and "The Navy," light orchestral concert.

ABROAD

COPENHAGEN	8.15 p.m. The Aarhus Philharmonic Society's concert.
HAMBURG	8 p.m. Musical play: "Laughing Florence," by Renato Ugo Rafaelli.
LEIPZIG and HAMBURG	The Hartz-Leipzig-Hamburg Exchange Programme.
PRAGUE	8.30 p.m. European concert from Helsinki (relayed by **Oslo, Stockholm, Lahti, Bratislava and Brno, Budapest,** etc.).
ROME	8.45 p.m. Concert of American music, conducted by Werner Janssen.
STUTTGART	8 p.m. The Philharmonic Orchestra, conducted by F. Drost.
TURIN	9 p.m. Opera: "La Vestale" (Spontini), from the Politeama Fiorentina (relayed by **Florence, Genoa, Milan, and Trieste**).

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Gramophone Concert. **6.0,** Programme for Children. **7.30,** Irish Music by the Station Orchestra. **8.0,** Songs by Annie Lorigan. **8.10,** Violin Solos by Daphne Garrett. **8.25,** Music by the Station Orchestra. **8.45,** Tenor Solos by J. F. Rodgers. **9.0,** The Adventures of Ellis Palmer—Play, presented by I. P. Mitchell and Co. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report and Close Down.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Concert. **8.30,** Exchange Quotations and Architectural Talk in Catalan. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations and Market Prices. **10.5,** Concert by the Station Orchestra: Military March No. 3 (Schubert); Selection from El perro chico (Valverde-Serrano); Berceuse (Bizet); Persian Dances (Mussorgsky); Nocturne (Coppola); Carnival Overture (Dvorak). **11.0,** El Rayo—Radio Play (Muñoz Seca and López Nunez). **12 Midnight** (in an interval), News. **1.0 a.m. (Friday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Notes, Tourist Talk, and Dopolavoro Announcements. **8.20,** Giornale Radio and News. **8.30,** Time Signal and Announcements. **8.35** (approx.), Military Band Concert, conducted by Salvatore Rubino. **10.30,** Popular Music on Gramophone Records. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**6.25 p.m.,** Time Signal and Programme Announcements. **6.30,** A Dialogue in French. **7.0,** Concert by the Station Orchestra. **8.0,** Recital of Folk Songs. **8.30,** European Concert, relayed from **Lahti. 10.0,** News Bulletin, followed by Cigány Music, relayed from the Potrosacka Zadruga Restaurant.

BERLIN

DEUTSCHLANDSENDER; 1,635 metres; 60 kW.—**2.0 p.m.,** Gramophone Concert, relayed from **Berlin (Witzleben). 3.0,** Nature Study Talk: Use of Root Crops. **3.30,** Weather and Stock Reports. **3.45,** Reading Monologue of the Old Juggler (Hans Carossa). **4.0,** Two Talks for Country Women. **4.30,** Concert, relayed from **Berlin (Witzleben). 5.10,** Topical Talk. **5.30,** 'Cello Recital by Walter Lutz. Karl Rockstroh at the Pianoforte. Adagio cantabile (Tartini); Minuetlied (Glazunov); Rondo (Dvorak); Tarantella (Popper). **6.0,** A Poem. **6.5,** Discussion on Questions of Contemporary Military Policy. **6.30,** Agricultural Talk: The Care of Crops. **6.50,** Weather Report and Wireless Notes. **7.0,** Transmission for all German Stations, relayed from **Leipzig. 8.0,** Dance Music. **8.50,** Reading of Poems about Spring. **9.10,** Dance Music (contd.). **10.0,** Weather Report, News and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Concert from **Langenberg. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.30 p.m.,** Concert by Alois Pachernegg and his Orchestra: Kärntnerlieder-Marsch (Seifert); Overture, Edelweiss (Komzak); Waltz, Dorfschwalben aus Oesterreich (Jos. Strauss); Waldbäurische Ländler (Keller); Neubayrischer Tanz (Keller); Schwalmertänze (Lewalter); Alpine Song Fantasia, Die Berge hoch (Pachernegg); Swabian Ländler (Mereckling); Old Berne March; Alpenjäger-Marsch (Kummerer). **5.15,** Talk: Youth and the State. **5.35,** Programme for Young People. **5.50,** Talk on Pomerania. **6.0,** Concert by the Napoli Mandoline Orchestra, conducted by Willy Rosenthal, with Walter Sonnenfeid (Xylophone). **6.45,** Topical Talk. **7.0,** Transmission for all German Stations: Hamburg-Leipzig Exchange Programme. **8.5,** Announcement. **8.10,** Concerto in A for Clarinet and Orchestra (Mozart), by Hermann Schrader and the Station Orchestra, conducted by Eugen Jochum. **8.30,** Readings. **9.30,** Concerto in C (Mozart), by Wilhelm Kempff (Pianoforte) and the Station Orchestra, conducted by Eugen Jochum. **10.0,** Weather, News and Sports Notes. **10.15** (approx.), Dance Music. **12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**6.30 p.m.,** Radio Journal. **7.40,** Talk arranged by the International Labour Bureau. **7.56,** Lottery Results. **8.0,** Talk on Wine. **8.15,** News. **8.30,** La Petite Chocolatiere—Comedy (Paul Gavault).

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**6.25 p.m.,** Arias from Operas: (a) The Demon (Rubinstein), (b) Prince Igor (Borodine), (c) Boris Godunov (Mussorgsky). **6.55,** News. **7.0,** See **Prague. 7.10,** Talk on Economics. **7.25,** See **Prague. 8.20,** European Concert, relayed from **Lahti. 10.0,** See **Prague. 10.15,** Concert by the Station Orchestra, conducted by F. Dyk. **11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—12.45 p.m.,** Weather for Farmers. **12.50,** Concert by the Station Orchestra conducted by Franz Marszalek. **1.45,** Time, Weather, News, and Exchange. **2.5,** Concert (contd.): Selection from Der Bettelstudent (Millöcker); March (Clemus); Mit vereinten Kräften (Reckten-wald); March, Frisch drauf los (Blon). **2.40,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.35,** Talk: Week-end Rambles. **3.45,** Book Review. **4.0** (from **Gleiwitz**), Orchestral Concert, conducted by Erich Peter. Overture, Der Schauspieldirektor (Mozart); Waltz from The Count of Luxembourg (Lehar); Intermezzo and Egyptian March from The Arabian Nights (Joh. Strauss); Stolz Potpourri (Dostal). **5.0,** Talk: Social Welfare Work. **5.30,** Agricultural Prices. **5.35,** Programme for Children. **5.50,** Talk: Events in Silesia in the Past Year. **6.10,** A Radio Report from **Habelschwerdt. 6.50,** Weather for Farmers and News. **7.0,** Transmission for all German Stations, **Hamburg-Leipzig** Exchange Programme. **8.0,** Concert by the Silesian Philharmonic Orchestra, conducted by Paul Scheinpflug: Soloist: Lubka Kolessa (Pianoforte). In the interval at **9.0,** News and Announcements. **10.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **10.20,** Answers to Technical Correspondence. **10.30,** Talk: North Moravian Customs. **10.50,** Theatre Talk. **11.10** (approx.), Close Down.

BRNO

578 kc/s, 342 metres; 35 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by B. Bakala: Overture, Op. 38 (Kalliwoda); Melody (Pecke); Serenade for Strings (Pek); Gavotte (Musil); Gallop (Smetana); Suite from L'Arlésienne (Bizet); Impression and Polish Dance (Rubinstein). **5.10,** News for Young People. **5.20,** Programme for Children. **5.50,** Review of Periodicals. **6.0,** Literary Review. **6.15,** See **Prague. 6.25,** German Transmission: News, followed by Goethe—Sketch (Fricdell and Polgar). **7.0,** See **Prague. 7.50,** Brass Band Concert. **8.30,** European Concert, relayed from **Lahti. 10.0,** See **Prague. 10.15,** See **Bratislava. 11.0** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Concert by the Small Station Orchestra, conducted by Leemans: Overture, The Thieving Magpie (Rossini); Waltz, Donausagen (Ziehrer); Serenata (Cacciali); Selection from Gipsy Love (Lehár); In a Persian Market (Ketelbey); Air (Langlois); Foxtrot (O. Straus); Padilla Potpourri (Salabert). **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert of Light Music. **5.0,** Gramophone Music: Gipsy Suite (German); Andante from Symphony No. 5 (Tchaikovsky). **5.30,** The Peace—Play (Aristophanes), arranged for Radio by Theo Fleischmann, with Music by Franz André. **6.30,** Extracts from Le Chant de Nigamon (Honegger) on Gramophone Records. **6.35,** Talk: Rural Industries. **6.50,** Gramophone Music: Waltz from Faust (Goumod-Liszt); Three Fanciful Etchings (Ketelbey). **7.15,** Talk on Brussels. **7.30,** Sports Notes. **8.0,** Gramophone Concert: Selection from The Gipsy Baron (Strauss); Hungarian Dance (Moszkowsky-Sommer); Le Rêve passe (Krier-Helmer). **8.15,** Arthur Cantillon Commemoration Programme: Talk, Reading of Poems, and Robinson—Play in One Act (Cantillon). **9.10,** Concert by the Liege Choral Circle, relayed from Liege; Conductor: Maurice Dambois: Cantata for the Ninth Sunday after Trinity (Bach); Marinelle (Dambois); Introduction and Chorus from the Second Act of Kaatje (Buffin). **10.0,** Le Journal Parlé. **10.10,** Dance Music, relayed from the St. Sauveur Palais de Danse.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**12 Noon,** Gramophone Concert. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Lecmans. Pasodoble (Gordon); Potpourri (H. Weber); Sérénade à Graziella (Desprez); Selection from The Geisha (Jones); Flute Solo: Le merle blanc (Damaré); Waltz, Tes doux baisers (Macker); Selection from H.M.S. Pinafore (Sullivan). **5.0,** Dance Music, relayed from the St. Sauveur Palais de Danse. **6.0,** Gramophone Records. Valse caprice (Rubinstein); Allegro appassionato (Saint-Saëns); Dance of the Waves (Catalani). **6.15,** Talk on Luther. **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans. Overture, The Gipsy Baron (Joh. Strauss); Old Spanish Song (Aubert); Fantasia on Swedish Songs (Söderman); Russian Melody (Akimenko); Hungarian Rhapsody, No. 12, for Pianoforte (Liszt); Selection from The Grand Duchess of Gérolstein (Offenbach). **7.15,** Talk: Belgium and the Crisis—Navigation and Transport. **7.30,** Talk for Women. **8.0,** Gramophone Records. Dance from Othello (Verdi); Fantasia for Flute) (Hüe); Ballad in G Minor (Brahms); Russian Airs (Wieniawsky); Valse romantique (de Sévérac). **8.30,** European Concert, relayed from **Helsinki** (See **Lahti**). **10.0,** Le Journal Parlé. **10.10,** Dance Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Light Music and Romanian Music by the Dinico Orchestra. **6.0,** Radio Journal. **6.15,** Concert by the Dinico Orchestra (contd.). **7.0,** Talk. **7.40,** Gramophone Concert of Light Music. **8.0,** Opera Music on Gramophone Records. In the intervals, Talk and Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **8.30 p.m.** till Close Down. **5.30 p.m.,** Gramophone Records of Variety Music. **6.0,** Talk. **6.30,** Recital of Hungarian Folk Songs, with Cigány Band Accompaniment. **7.30,** Talk. **8.0,** Pianoforte Recital by Gynia Karolyi; Ballad in A flat (Chopin); Etude in F Minor (Chopin); Etude in A flat (Chopin); Etude in C Sharp Minor (Chopin); Etude de Concert (Schlözer); Two Pieces (Liszt): (a) Ricordanza, (b) La Campanella; Feux d'artifice (Debussy). **8.30,** European Concert relayed from **Helsinki** (See **Lahti**). **10.0,** News Bulletin, followed by Concert of Cigány Music from the Ketter Restaurant.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time Signal and Chimes from the Town Hall. **12.2 p.m.,** Concert by the Harald Andersen String Ensemble, relayed from the Bellevue Strandhotel. **2.0 to 3.0,** Interval. **3.0,** Concert by the Station Orchestra, conducted by Launy Gröndahl. Soloist: Karen Lis Thomsen (Songs). **5.0,** Programme for Boys. **5.40,** Exchange and Fish Market Prices. **5.50,** Talk: A Cycling Trip to Mont St. Michel. **6.20,** English Lesson. **6.50,** Weather. **7.0,** News. **7.15,** Time. **7.16,** Talk: The Future of Christianity. **7.45,** Danish Lesson. **8.5,** Talk on the following Relay. **8.15,** Lindbergh's Flight—Musical Play (Weill—Text by Berholt Brecht), by the Aarhus Philharmonic Orchestra and Soloists, relayed from the Theatre, Aarhus. **9.0,** A Microphone Visit to a Sanatorium. **9.30,** Saxophone Recital by Winstrup Olesen. Humoresque (Thomsen); Waltz (Mathisen); I hear you calling me (Marshall); Canzonetta (d'Ambrosio). **9.45,** Radio Play. **10.0,** News. **10.15,** Orchestral Concert of Viennese. Conductor: Fritz Mahler. Overture, Methuselah (Joh. Strauss); Waltz, Die Schönbrunner (Lanner); Laxenburger Polka (Jos. Strauss); Waltz and Scene from Der Rosenkavalier (R. Strauss); Overture and Waltz from Der Schneemann (Korngold); Hornpipe (Korngold). **11.0,** Dance Music, by the Otto Lington Band, from the Ritz Restaurant. In an interval at **12 Midnight,** Time Signal and Chimes from the Town Hall. **12.30 a.m. (Friday)** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**11.30 a.m.,** Gramophone Concert of Variety Music. **12 Noon,** Light Music on Gramophone Records. **12.30 p.m.,** News. **12.40,** Programme for Children. **5.30 to 7.0,** Programme in English by the I.B.C.; Announcers: C. Danvers-Walker and B. McNabb. **5.30,** Concert for Worthing and Littlehampton Listeners: Overture, Figaro (Mozart); Minuet from Berenice (Handel); Song of the Volga Boatmen (Traditional); It is only a Tiny Garden (Haydn Wood); Selection from Show Boat (Kern); Violets (Wright); Only a Rose (Friml); Vienna Maidens (Ziehrer); Drink to me only (Calcott); Rose of Tralee Waltz, Sphärenklänge (Jos. Strauss). **6.15,** Variety Concert for Brighton and Hove Listeners: The Grasshopper's Dance (Bucalossi); Selection from The Merry Widow (Lehar); Song, Always in my heart (Ketelby); Songs: (a) I'll never be the same, (b) I'll stay with you; Trio: You'll never realise; Waltz, Beautiful Spring (Lincke); Duet: Only One Girl in the World for me; Wedgwood Blue (Ketelbey); Sari Waltz (Kalman). **7.0,** Radio Gazette. **7.20,** Local News. **7.30,** Popular Music on Gramophone Records. **7.45,** The Listeners' Half Hour and News. **8.30,** Concert, relayed from the Town Hall, Rouen. **10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music by the Ibcolians: On a little Balcony in Spain; the Belle of Barcelona; The One Man Band; Fiesta; How's your Uncle? Carolina Moon; Pardon Madame; I'd like to find the Guy that wrote the Stein Song; Bathing in the Sunshine; Whistling in the Dark; Choo, Choo; You're twice as nice as that Girl in my Dreams; Sweet and Lovely; How about me! Goodnight. **11.0,** Organ Recital: There's something about a Soldier (Gay); Sweet Genevieve (Tucker); Butterflies in the Rain (Myers); Mother Machree (Olcott and Ball); Paradise; The Wooden Soldier and the China Doll; Sing Brothers, from Tell her the Truth; Potpourri; Illegal. **11.30,** Gramophone Concert of Songs by Harry Lauder; Back to the Shore where the Heather grows; I think I'll get wed in the Summer; Bella, the Belle o' Dunoon; Saturday Night; O'er

MAY 4th THURSDAY continued

the Hills to Ardentenny; Somebody's waiting for me; She's the lass for me; I'd love to be a Sailor. **12 Midnight,** Club Concert for Harrogate and Knaresborough Listeners: The Poet's Song, from La Bohème (Puccini); Who is Sylvia? (Schubert); Trio: (a) Dreaming (Flanagan), (b) To-night (Kennedy); Czardas (Monti); Goodbye (Tosti); Danny Boy (Weatherley); The Ratcatcher's Daughter; Villikins and his Dinah; Mandolinata (de Pietro); Cœur Brisé (Gillet); The Kiss Waltz; Waiting by the Silvery Rio Grande; Minuet No. 1 (Paderevsky). **1.0 a.m. (Friday),** Accordion Band Concert: Comedy Overture (Kéler-Béla); Flor d'España (Vola); Lucassi March (Lucassi); Rosa (Vola); Marche Cuvelle (Cuvelier); La Tourterelle (Damaré); Riverside; Restless Fingers (Cuvelier). **1.30,** Vocal Duets: I must be Dreaming; Let's Dream a little longer; Daybreak; Orchestra: The Cat and the Fiddle; Sally of my Dreams; Why? Sonny Boy. **2.0,** Dance Music by the Ibcolians: It's Winter Again; You're telling me; Look who's here; A Million Dreams; Always in my Heart; Someday we'll meet again; Strange Interlude; The Knave of Diamonds; Please handle with Care; A Waltz of Long Ago; Cinderella's Wedding Day; Overnight; Business in Q; Cheerful little Earful. **2.57,** I.B.C. Goodnight Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW., and **Cassel, 1,220 kc/s, 245.9 metres,** and **Trier, 1,157 kc/s, 259.3 metres.**—**4.30 p.m.** Concert by the Station Orchestra, conducted by Reinhold Merten. Soloists: Skuhra (Pianoforte) and Berti Grübener (Songs). Overture, Ascanio in Alba (Mozart); Pastorale variée for Pianoforte (Mozart); Six German Dances (Mozart); Two Pieces for Pianoforte (Brahms): (a) Intermezzo, Op. 118, (b) Capriccio in C Sharp Minor, Op. 76; Academie Festival Overture, Op. 80 (Brahms); Jupiter March from Der Göttergatte (Lehar); Waltz, Frau, schau, wem (Strauss); Songs from Operettas; Selection from Der Rastelbinder (Lehar); Songs from Operettas; March from Die Jungfrau von Belle-Ville (Millöcker). **5.50,** Economic Notes. **6.0,** Questions of the Day. **6.25,** Book Review. **6.50,** Time, Programme Announcements, Weather and Economic Notes. **7.0,** Transmission for all German Stations—Leipzig-Hamburg Exchange Programme. **8.0,** The Oxford Symphony (Haydn) by the Station Orchestra, conducted by Georg von Loeben. **8.30,** European Concert, relayed from **Lahti. 10.10,** Notes on Art and Science. **10.20,** Time, News, Weather and Sports Notes.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse); **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—**5.55 p.m.,** Reading from the Works of Richard Billinger, with Commentary. **6.25,** Talk: Economics and the Household. **6.45,** Exchange Quotations. **6.50,** Weather. **7.0,** Transmission for all German Stations. The Harz Mountains. Leipzig-Hamburg Exchange Programme. **8.0,** Laughing Florence—Musical play in Three Acts (Renato Rafaelli), with Prologue by Hans Crener. **10.0,** Time and News. **10.20,** Topical Talk. **10.30,** Dance Music by the Station Chamber Orchestra, conducted by Gerhard **Maasz.**

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.**—**1.5 p.m.,** Gramophone Concert: Selection from The Mastersingers (Wagner); Allegro moderato and Adagio from the Concerto grosso (Vivaldi); Variations on 's kommt ein Vogel geflogen (Ochs); Overture, Banditenstreiche (Suppé); Kennst du mein Liebeslied (Drdla); Das Regiment Forkade bei Hochkirch (Reznicceck); Deutschland blühe neu auf (Meyer-Helmund); March, Rheinlieder (Frantzen). **2.0,** Report on the Spring Auction at Trakehnen, relayed from **Trakehnen.** In the intervals at **2.30** (from **Danzig**), Exchange and Commercial Prices, and at **3.0,** Agricultural Prices and Exchange. **3.30,** Talk for Young People. **4.0,** Concert by the Stahlhelm Band, conducted by Ernst Hennig: Festival Overture (Lortzing); Paraphrase on the Song Waldandacht (Abt); Morgenblätter (Joh. Strauss); Selection from Rigoletto (Verdi); March, Hohenzollernruhm (Unrath); Chronological Potpourri, Historical Marches (arr. Kaiser); Regimental March; Parademarsch der langen Kerls (Roland); March Potpourri, Die Wache zieht auf (Kochmann); March with Fanfares, Franz Selâte (Blume). **5.45,** Radio Report from a Poultry Farm in Schreinen. **6.15,** Agricultural Prices. **6.25,** Agricultural Talk. **6.50,** Weather, **7.0,** Transmission for all German Stations, relayed from **Leipzig. 8.0,** A Humorous Scene about Marriage, with Music and Dancing (Adolf Raskin). **8.30,** European Concert relayed from **Lahti. 9.15,** Announcements. **9.20,** Nietzsche as a Musician. Introductory Talk. Two Pieces for Pianoforte Duet. Songs. **9.50,** Elementary English Lesson. **10.15,** Weather, Announcements, and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**). Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.10 a.m.,** 'Cello Recital by Theo van Houten. **11.40,** Dressmaking Lesson. **12.10,** Song Recital by Mia van der Eynde. **12.40,** Time Signal. **12.41,** Concert by the Wireless Orchestra, conducted by Nico Treep: Suite, Mascarade (Lacome); Waltz from Romeo and Juliet (Gounod); Selection from Mignon (Thomas); Gramophone Records: Waltz, Wo die Zitronen blühen (Joh. Strauss); Baby's Soldier (Noack); Die Spieluhr der Pompadour (Noack); Pirouette (Finck); Selection from Der Teufelsreiter (Kalman); Gramophone Records: La Tzigane (Ganne); Serenade (Tosti); In the Temple of Apollo (Dyck); Melody (Brousteet); Waldteufeleien (Kling); Purzelbaum (Lincke). **2.55,** Interval. **3.10,** Light Music on Gramophone Records. **3.40,** Dressmaking Lesson. **4.25,** Gramophone Records (contd.). **4.40,** Programme for Hospitals. **5.10,** Violin Recital by Annie Mesritz. **5.40,** Programme for Older Children. **6.10,** Light Concert by the Kovacs Lajos Band, with Songs by Bob Scholte. **7.10,** Talk on Sports. **7.40,** Light Concert (contd.). **8.10,** Talk on Holland. **8.40,** Time Signal and News. **8.45,** Light Music on Gramophone Records. **9.25,** Violin Concerto in G (Mozart) by the Wireless Orchestra, conducted by Nico Treep, and Adolph Poth (Violin). **9.50,** Concert of Music by Röntgen for Vocal Quartet and Pianoforte. **10.10,** Concert by the Wireless Orchestra, conducted by Nico Treep: Kleiner Wiener Marsch (Kreisler); Caprice Mazurka (Lenom); By the Blue Hawaiian Waters (Ketelbey); Estudiantina (Waldteufel); La voix des Cloches (Luigini). **10.40,** Radio Play. **11.10,** Concert (contd.), Russian Folk Music (Bernards); Karno Bube (Steele); Patrouille enfantine (Gillet); Au Moulin (Gillet); Selection from The Gipsy Baron (Joh. Strauss). **11.40,** News. **11.50,** Light Music on Gramophone Records. **12.40 a.m. (Friday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**11.40 a.m. to 2.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). **11.40,** Popular Music on Gramophone Records. **12.10, p.m.,** Religious Address. **12.40,** Police Announcements. **12.55,** Orchestral Concert. March, Schönfeld (Ziehrer); Overture, Banditenstreiche (Suppé); Waltz, Mon rêve (Waldteufel); Selection from Frederica (Lehár); Two Spanish Dances (Moszkowsky); Gramophone Records; Overture, Fra Diavolo (Auber); Parade of the Wooden Soldiers (Jessel); Waltz, Doctrinen (E. Strauss); Potpourri, Contrasts (Robrecht); Leuchtkäferchens Stelldichein (Siede); March, Granada (Garcia). **2.40** till Close Down. Programme of the Christian Radio Society (N.C.R.V.). **2.40,** Lesson in Handicrafts. **3.40,** Talk for Women. **4.10 to 4.40,** Interval. **4.40,** Bible Reading and Songs. **5.40,** Pianoforte Recital by Mme. A. J. v. Duin-Koerts. Soeur Monique (Couperin); Corrente, Minuets Nos. 1 and 2 and Sonata (Händel); Variations on Quanto è piu bello (Beethoven); Sonata, Op. 10, No. 1 (Beethoven); Moments musicaux, Nos. 1 and 6 (Schubert); Impromptu No. 2 (Schubert). **6.25,** Handwork Lesson for Young People. **6.55.** Talk. **7.25,** Dressmaking Lesson. **7.40,** Police Announcements. **7.55,** Religious Information. **8.10,** Press Review. **8.40,** Choral and Orchestral Concert. Symphony in B Flat (Schubert); Psalm No. 42 (Mendelssohn); Concertante Symphony (Haydn). **9.40,** Talk on Films. **10.10,** Concert (contd.). Three Songs; Introduction and Trio from L'Enfance du Christ (Berlioz); Three Songs; Overture, Mignon (Thomas); Kaiserwalzer (Joh. Strauss); Selection from Countess Maritza (Kálmán); Potpourri, From A to Z (Geiger); Piazza del Popolo (Juel-Frederiksen); Marche lorraine (Ganne). In the interval at **10.40,** News. **11.55,** Popular Music on Gramophone Records. **12.10 a.m. (Friday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres 0.8 kW.—**8.0 p.m.,** Theatre Guide, News, Exchange and Racing Results. **8.10,** Talk on Economics. **8.20,** Talk on Fashions. **8.30,** Concert of Light Music. **9.0,** News. **9.15,** Variety Programme. **12 Midnight** till Close Down, Programme in English by the I.B.C. Announcer: H. K. Hitchcock. **12 Midnight,** Vocal and Orchestral Concert: Songs: (a) Air from La belle Hélène (Offenbach), (b) My Man (Adams); Granny's Photo Album (Greer); Songs: (a) By the Fireside (Connelly), (b) All my Life (Gibbons); Speak to me of Love (Lenoir); Songs: On the Banks of Allan Water (Traditional); Ben Bolt (arr. Collingwood). **12.30 a.m. (Friday),** Dance Music: What a Perfect Combination; A Letter to my Mother; Look what you've done; Standing on the Corner; Miss Elizabeth Brown; River stay 'way from my Door; Dick Turpin's Ride to York. **12.57,** I.B.C. Good-night Melody. **1.0,** Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW. **5.0 p.m.,** Choral Concert. **5.40,** See **Warsaw. 7.0,** Talk on Sport. **7.15,** Announcements and Gramophone Records of Light Music. **7.25,** Talk for Boy Scouts. **7.30,** See **Warsaw. 10.25,** Gramophone Records of Popular Music. **10.55,** See **Warsaw.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by **Helsinki, 815 kc/s, 368.1 metres.**—**6.15 p.m.,** Talk. **6.40,** 'Cello Recital by Pentti Rantavaara: Air (Handel-Ronchini); Minuet (Becker); Sonatina (Beethoven); Romance (Debussy); Habanera (Ravel); Les Cloches (Debussy); Chanson villageoise (Popper). **7.0,** Programme of Duets. **7.20,** Talk. **7.40,** Recitations. **8.0,** News in Finnish and Swedish. **8.15,** Introductory Talk to the following Transmission. **8.30,** European Concert: Sibelius Programme by the Station Orchestra and the Helsinki Municipal Orchestra, relayed from the University. Conductor: Armas Järnefelt. Soloist: Anja Ignatius-Lagus (Violin). Symphonic Poem, The Oceanides, Op. 73; Violin Concerto; Symphony No. 5 in E Flat, Op. 82. **10.0** (approx.), Close Down.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Orchestral Concert, conducted by Brener: Overture, Sicilian Vespers (Verdi); Selection from Manon Lescaut (Puccini); Ballet Music from Faust (Gounod); A Morning in Sanssouci (Kockert); Two Polkas (Strauss): (a) Pizzicato, (b) Bitte schön; March, Abmarsch in die Quartiere (Blankenburg). **12.50 p.m.,** Weather, Time, and News. **1.0,** Orchestral Concert, conducted by Karl Koethke, relayed from the Tonhalle, Duisburg: Hohenfriedberger Marsch; Torgauer Marsch; Overture, Das Nachtlager in Granada (Kreutzer); Three German Dances (Mozart): (a) Der Kanarienvogel, (b) Der Leierkastenmann, (c) Schlittenfahrt; Two Melodies from The Mastersingers (Wagner); Romance and Minuet from the Military Symphony (Haydn); Hungarian Rhapsody, No. 1 in F (Liszt); Entr'acte Music in B Flat from Rosamunde (Schubert); Ballet Music from La Gioconda (Ponchielli); Military March in E Flat (Schubert). In the interval at **2.0,** News. **2.30,** Sponsored Programme with Gramophone Records. **2.45 to 3.0,** Interval. **3.0,** Programme for Children. **3.30,** Economic Notes and Time. **3.50,** Educational Talk. **4.20,** Notes on the Broadcasts for Schools. **4.30,** Concert, conducted by Wolf: Overture, Titus (Mozart); Minuet and Scherzo (Schubert); Selection from The Merry Wives of Windsor (Nicolai); Waltz, Ins Zentrum (Joh. Strauss); Rococo Suite (Schütte); Selection from The Dollar Princess (Fall); Potpourri, O Deutschland hoch in Ehren (Lindemann). **5.45,** Review of New English Books. **6.5,** Talk: Legend and History in the Rhineland and Westphalia. **6.25,** French Conversation. **6.45,** Weather, Time, Economic Notes, and Sports Report. **7.0,** Transmission for all German Stations relayed from **Leipzig. 8.0,** News. **8.5,** Concert of Folk Music by a Concertina Orchestra, Street Musicians, and Girl Singers. **8.30,** European Concert relayed from **Lahti. 10.5,** News and Sports Notes. **10.35,** Serenade and Dance Music, conducted by Eysoldt. **12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW.; and **Dresden. 319 metres.**—**12 Noon,** Chamber Music on Gramophone Records. **1.0 p.m.,** News, Weather, and Time. **1.15,** Bunte Stunde, on Gramophone Records: Overture, Si j'étais roi (Adam); Hunters' Chorus, from Der Freischütz (Weber); Rondo (Mozart); Ave Maria (Schubert-Wilhelmi); Introduction, Evening Prayer, and Gingerbread Waltz, from Hansel and Gretel (Humperdinck); Two Arias from Cavalleria rusticana (Mascagni); Selection from Die Puppenfee (Bayer); Waltz, España (Waldteufel); Hohenfriedberger Marsch (Frederick the Great). **1.50** (approx.), Exchange Quotations. **2.0,** Film Review. **2.30,** Advice for the Unemployed. **3.0,** Handwork for Children. **3.35,** Exchange and Market Prices. **4.0,** Concert by the Station Orchestra, conducted by Theodor Blumer: Overture, Das tapfere Schneiderlein (Hanel); Selection from La Bohème (Puccini); Selection from Das verwünschene Schloss (Millöcker); Overture, Nakiris Hochzeit (Lincke); Polka-Mazurka, Näscherei (Ziehrer); March, Frühlingseinzug (Blon); Pictures from the South, Op. 29 (Nicodé); Ballet Suite from Namouna (Lalo); Waltz, España (Waldteufel). **5.30,** Weather and Time. **5.35,** Notes for Taxpayers. **5.50,** Market Prices. **6.0,** Talk: The German Course for Foreigners at Leipzig University. **6.25,** Talk in connection with the 8.35 p.m. Transmission. **6.45,** The Leipzig Station informs its Listeners . . . **7.0,** Transmission for all German Stations; Leipzig-Hamburg Exchange Programme—The Harz. **8.0,** Topical Talk. **8.10,** Zither Recital. **8.35,** European Concert of Finnish Music, relayed from **Lahti. 10.5,** News Bulletin. **10.20** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**6.0 p.m.,** Quintet Concert. **7.0,** Italian Lesson. **7.30,** The Letter Box. **8.0,** Song Recital. **8.40,** Choral Concert. **9.30,** Quintet Concert. **10.0,** Weather and News. **11.0,** Close Down.

LWOW

788 kc/s, 381 metres; 16 kW.—**7.0 p.m.,** Historical Talk. **7.15,** Miscellaneous Items. **7.30,** See **Warsaw. 8.0,** Light Music on Gramophone Records. **8.10,** See **Warsaw. 8.30 to 10.0,** European Concert, relayed from **Lahti. 10.0,** See **Warsaw. 11.0,** Musical Programme. **12 Midnight** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Radio Journal and Programme for Children. **9.15,** News Bulletin and Political Review. **9.30 to 10.0,** Interval. **10.0,** Linguaphone English Lesson. **10.30,** Chimes, Time Signal and Political Review. **10.45** (approx.), Concert of Symphony Music on Gramophone Records: Egmond Overture (Beethoven); Eine kleine Nachtmusik (Mozart); Symphony No. 3 (Mendelssohn); Polonaise No. 2 (Liszt); Tone Poem, Don Juan (R. Strauss); Navarra (Albeniz). **12.45 a.m. (Friday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**7.0 p.m.,** See **Prague. 7.25,** Concert by the Valak Brass Band: March (Setina); Waltz (Schránil); Polka (Jankovec); Tango (Vacek); Children's March (Potuznik); Waltz (Smid); March (Setina). **7.50,** See **Prague. 8.30,** European Concert, relayed from **Lahti. 10.0,** See **Prague. 10.15,** See **Bratislava. 11.0** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg and Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—**5.0 p.m.** (from **Kaiserslautern**), Schubert Concert, conducted by Karl Wüst: Overture in Old Style; German Dances; Ballet Music from Rosamunde; Minuet and Finale from the Symphony in B Flat. **5.45,** Agricultural Talk. **6.5** (from **Kaiserslautern**). Talk: Dramatic Art in the Palatinate. **6.25,** Time, Weather, and Agricultural Notes. **6.35** (from **Nürnberg**). Song Recital by Josef Laufer (Baritone): Frühlingssegen (Breu); Hymn (Stier); Süsse Sorgen (Zilcher); Schlafend trägt man mich (Knab); Mich besingt die Zeit mit Schall (Knab); Ich habe gesät (Schadewitz); Zuflucht (Schadewitz); Alle Dinge haben Sprache (Ritter); Es werde Licht (Ritter). **7.0,** Transmission for all German Stations, relayed from **Hamburg. 8.5,** Variety Programme by the Munich Tramways Company. **9.15,** Talk on Brahms. **9.35,** Instrumental Concert: Duet for Flute and Pianoforte (Fehres); Theme for Flute and Pianoforte (Knsterer); Sonata in F. Op. 99, for 'Cello and Pianoforte (Brahms). **10.20,** Time, Weather, News, and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**5.30 p.m.,** Light Music on Gramophone Records. **6.0,** German Lesson. **6.30,** Divine Service. **7.0,** Announcements, Weather and News. **7.30,** Concert of Variety Music by M. Erling Nielsen (Violin), M. Kristian Hauger (Pianoforte), M. Guttom Frölich (Guitar) and M. Kramar-Johansen (Accordion). **8.0,** Time Signal. **8.1,** Agricultural Notes. **8.30,** European Concert, relayed from **Lahti. 10.0,** Weather and News.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements, Agricultural Report, and Giornale Radio. **8.20,** Light Music

on Gramophone Records. In the interval at **8.30**, Time and Announcements. **8.45**, Concert of Operetta Music: Selection from Eva (Lehár); Selection from La casa innamorata (Lombardo). **9.30**, One-act Comedy. **10.0**, Concert (contd.): Selection from Primarosa (Pietri); Selection from Die Bayadere (Kálmán). **10.55**, News Bulletin.

PARIS

EIFFEL TOWER. Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**6.45 p.m.**, Theatre Review. **7.0**, Le Journal Parlé. **8.20**, Weather Report. **8.30**, Gramophone Concert: Part I—Russian Music; 1812, Overture (Tchaikovsky); Selection from Prince Igor (Borodin); Aria from Boris Godunov (Mussorgsky); In the Steppes of Central Asia (Borodin); Song of the Flea (Mussorgsky); The Nutcracker Ballet (Tchaikovsky). Part II—Audran's Operetta Music; Extracts from La Mascotte, Miss Decima and Le Grand Mogol. **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.**, Journal Parlé. **7.0**, Programme for Children. **7.30**, Light Music on Gramophone Records. **8.0**, Agricultural Talk. **8.5**, Talk for Workmen. **8.15**, Interval. **8.30**, Saxophone Solos by M. Ghisleri. Baliverne (Ghisleri); Indian Love Call (Friml); Bagatelle (King); Waltz, Vanité (Widoe). **8.50**, Interval. **9.5**, Harp Solos by Mlle. Parant: Impromptu (Growlaz); Gigue (Bach); Improvisation and Allegro (Gallon). **9.25**, Interval. **9.30**, Sponsored Concert. **10.30**, News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.**, Physical Culture. **7.30**, Weather and Physical Culture (contd.). **7.45**, Gramophone Records. Selection from Die Fledermans (Joh. Strauss); Selection from Gretna Green (Guirand). **8.0**, Press Review and Weather. **12 Noon**, Protestant Address. **12.30**, Orchestral Concert. Overture, Lalla Roukh (David); Selection from Lakmé (Delibes); Pianoforte Solo, Les jeux d'eau de la villa d'Este (Liszt); Gramophone Records: (a) Le Nil (Leroux), (b) Les vieilles de chez nous (Levadé); Selection from Orpheus in the Underworld (Offenbach); Gramophone Record: Aria from Louise (Charpentier); Selection from Manon (Massenet); Malaguena (Albéniz); Gramophone Record: Parlez moi d'amour (Lenoir); Two Sketches (Bach and Laverne): (a) A la poste, (b) A la foire; Selection from Sigurd (Reyer); Marche Lorraine (Game). In the intervals at **1.0**, Exchange, News and Weather, and at **1.30**, Exchange. **2.0**, Exchange. **3.45**, Exchange and Market Prices. **6.10**, Agricultural Talk. **6.30**, Gramophone Records. Serenata (Malati); Jota aragonesa (Malati); Saxophone Solo: Mélancolie (Larmanjat); Humoresque (Dvorák). **6.45**, Legal Talk. **7.0**, Talk: Princesse Mathilde and her Salon. **7.20**, Orchestral Concert. Russian March (Luigini); Conte d'avril (Widor); España (Albéniz). **7.45**, Review of the German Press. **8.0**, Two Plays: (a) Une visite de Noces (Dumas), (b) Le Convive (Pagat). In the intervals at **8.30**, News and Weather, and at **8.40**, Review by Christophe. **9.15**, Press Review and News. **9.30**, Gramophone Concert of Operetta and Sound Film Music. March of the Grenadiers, from The Love Parade (Schertzinger); The Wedding of the Painted Doll, from The Broadway Melody (Brown); Quand on a vingt ans and Montparno, from Jean V (Yvain); Song from La route est belle (Planchar); Two Melodies from The Czarevitch (Lehár); You've brought a New Kind of Love to me, from The Big Pond (Fain and Norman); Two Melodies from The Gipsy Princess (Kálmán); Ce n'est pas la première fois and Finale from Act I of Coup de Roulis (Messager); The Pagan Love Song (Nacio-Brown); Selection from Show of Shows.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**7.30 p.m.**, Health Talk by Dr. Royal S. Copeland. **7.35**, KDKA Home Forum. **7.55**, Care of the Garden by Alfred C. Hottes. **8.0**, Betty and Bob, from **New York.** **8.15**, A Classic All-Request Programme. **8.30**, Radio Sky Pilots. **8.45**, State Federation of Pennsylvania Women—(Subject to be announced). **9.0**, Teaberry Baseball Scores. **9.5**, Business News. **9.15**, Programme to be announced. **9.30**, Weather Report. **9.32**, Market Reports. **9.45**, Programme to be announced. **9.57**, David Lawrence Dispatch. **10.0**, Teaberry Baseball Scores. **10.5**, Programme to be announced. **10.15**, Dick Darling, from **New York.** **10.30**, Singing Lady, from **New York.** **10.45**, Little Orphan Annie. **11.0**, Our Daily Food—George Rector's Cooking School, from **New-York.** **11.15**, Time Signal. **11.16**, Weather Report. **11.17**, Teaberry Sport Review. **11.22**, Press News Reeler. **11.29**, Temperature Report. **11.30**, KDKA Orchestra. **11.45**, To-day's News by Lowell Thomas, from **New York.** **12 Midnight**, Pepsodent Amos 'n' Andy, from **New York.** **12.15 a.m. (Friday)**, Concert Footlights. **12.45**, Programme to be announced. **1.0 to 3.0, New York** Relay. **1.0**, Captain Diamond's Adventures. **1.30**, Time Signal and Rin-Tin-Tin Thrillers. **1.45**, Thurston, the Magician. **2.0**, Death Valley Days. **2.30**, Wayne King's Orchestra, with Lady Esther. **3.0**, Dr. Curtis Howe Springer.

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.9 kW.—**5.40 p.m.**, Programme for Children. **6.0**, Light Music on Gramophone Records. **6.20**, Talk on Modern Painting. **6.35**, Agricultural Talk. **6.50**, Miscellaneous Items and Announcements. **7.10**, The Letter Box. **7.28**, Time Signal. **7.30**, See **Warsaw.** **8.0**, Pianoforte and Vocal Concert. In the interval, Theatre Notes and Programme Announcements. **9.30**, Talk. **9.45**, Light Music on Gramophone Records. **10.0**, Time, Sports Notes and Police Announcements. **10.15**, Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.**, See **Brno.** **5.10**, Talk on Economics. **5.20**, See **Brno.** **5.50**, Popular Music on Gramophone Records. **6.5**, Gardening Talk. **6.15**, Talk for Workers. **6.25**, News in German. **6.30**, German Transmission: Book Review and Agricultural Talk. **7.0**, Chimes and News. **7.10**, English Conversation. **7.25**, Mandoline Concert. **7.50**, Reading. **8.5**, Variety Programme. **8.30**, European Concert, relayed from **Lahti.** **10.0**, Time Signal, News, and Sports Notes. **10.15**, See **Bratislava.** **11.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 660 metres;** and **Geneva, 395 kc/s, 760 metres.**—**6.20 p.m.** (from **Geneva**), Esperanto Programme. **6.35** (from **Lausanne**), Italian Lesson. **7.0** (from **Lausanne**), Weather Report and News. **7.30** (from **Lausanne**), Talk on the Theatre. **8.0**, Suite for 'Cello (Templeton Strong), by F. Poulain and the Radio Suisse Romande Orchestra. **9.10** (from **Geneva**), Concert by the Landwehr, conducted by M. Hoogstoel. **10.0**, News and Weather. **10.10** (from **Geneva**), Talk: The Work of the League of Nations. **10.30** (approx.), Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—**5.0 p.m.**, Concert of Light Music. **6.0**, Talk on Wireless. **6.30**, English Lesson. **7.0**, Weather. **7.5**, Orchestral Concert of Latvian Music. **8.0**, News. **8.15**, Recital of Popular Latvian Songs by Emils Maurins (Baritone). **8.35**, Light Music: A Fête in Aranjuez (Demerssemann); Enfants du printemps (Waldteufel); Golden Rain (Waldteufel). **9.0**, Weather and News. **9.20**, European Concert, relayed from **Lahti.**

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.**—**1.0 to 2.15 p.m.**, Orchestral Concert. In the interval from **1.30 to 1.45**, Giornale Radio and Exchange. **4.45**, Children's Radio Review. **5.10**, Announcements. **5.15**, Exchange and Giornale Radio. **5.30 to 6.15**, Song and Violin Recital by Luigi Biondi (Violin). Gianna Perea Labia (Soprano), and Angelo Parigi (Tenor); Violin Solos: (a) Canto amoroso (Sammartini), (b) Rondo (Mozart); Soprano Solos: (a) Ariette (Panseron), (b) Aria from La Sonnambula (Bellini); Tenor Solos: (a) Chanson italienne, (b) Chanson française, (c) Chanson grecque (Ravel), (d) Una rota si fa in cielo (Persico); Violin Solos: (a) Canzonetta andalusa (Giacomelli), (b) Plagera (Sarasate); Bravoura Variations (Proch). **7.0 (Naples),** Shipping and Sports Notes. **7.10,** Agricultural and Dopolavoro Notes. **7.20,** Giornale Radio and Gramophone Records of Variety Music. **8.0,** Time and Announcements. **8.15,** Song Recital by Anna Maria Landisa (Soprano). **8.30,** Sports Notes and Tourist Report. **8.45,** Concert of American Music, conducted by Werner Janssen: Comedy Overture on negro themes (H. F. B. Gilbert); Requiem (Rubin Goldmark); Cubist (Thomas Griselle); An American in Paris (Gershwin); Talk: Literature and Art: On the Hill of Natchez—Three Dances from Virginia (John Powell); Scherzo from the Afro-American Symphony (William Grant Still); Modern Suite, Louisiana (Werner Janssen). **10.55,** News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres. 12.45 a.m. (Friday),** Stock Reports. **1.0,** Fleischmann Hour, from **New York.** **2.0,** Captain Henry's Show Boat, from **New York.** **3.0,** Lucky Strike Hour, from **New York,** followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**12.28 p.m.**, Time, Weather and News. **12.40** (from **Basle**), Film Music on Gramophone Records. **1.35** (from **Basle**), Weather and Exchange Quotations. **3.30 p.m.**, Programme for Women. **4.0** (from **Zürich**), Orchestral Concert of Light Music. **5.0** (from **Zürich**). Popular Music on Gramophone Records. **5.30,** Weather Forecast. **6.30** (from **Basle**), Talk. **7.0,** Time, Weather and Traffic Report. **7.15,** Italian Lesson. **8.0** (from **Basle**), Haydn Song Recital by Max Meili. **8.30,** European Concert, relayed from **Lahti.** **10.0,** Weather and News Bulletin.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres,** and **Sundsvall, 554 kc/s, 542 metres.**—**5.30,** Programme for Children. **5.45,** Popular Music on Gramophone Records. **6.45,** Elementary English Lesson, relayed from **Jönköping, 1,490 kc/s (201.3 metres). 7.15,** Weather and News. **7.30,** Choral Concert of Swedish Music, conducted by Bror Jansson. **8.0,** Talk. **8.30,** European Concert, relayed from **Lahti. 9.30,** A Visit with the Microphone. **9.45,** Weather and News. **10.0,** Orchestral Concert. Soloists: Nils Olsson (Clarinet) and Nils Björk. Overture, Si j'etais roi (Adam); Waltz, Liebesliesder (Joh. Strauss); Clarinet and Pianoforte: (a) Andantino (Jeanjean), (b) Scherzo brillante (Jeanjean); Serenade (Bonelli); Swedish Pictures, Suite No. 2 (Wesslander); Viennese Waltz, In einem kleinen Café in Hernals (Leopoldi); Two-step from Glückliche Reise (Künneke). **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.20 a.m.**, Light Music on Gramophone Records. **12 Noon,** Concert, conducted by Maurice de Villers. **12.45 p.m.**, News Bulletin. **1.0,** Time Signal. **1.1,** Exchange. **1.5,** Orchestral Concert (contd.). **2.0,** Programme for Children. **3.0 to 4.15,** Interval. **4.15,** French Elocution Lesson. **4.30,** Programme for Children, relayed from **Bordeaux-Lafayette. 6.0,** Talk in German: The French Renaissance. **6.15,** Talk in French for Women. **6.30,** Orchestral Concert, conducted by Roskam: Marche tartare (Game); Waltz, Dynamiden (Joh. Strauss); Canzonetta for Violin (d'Ambrosio); Overture, The Golden Cross (Brüll); Selection from Manon (Massenet); 'Cello Solo: Après un rêve (Fauré); Spanish Dances for Pianoforte (Moszkowsky); March, The Gladiators' Farewell (Blankenburg). **7.30,** Time Signal. **7.31,** News Bulletin. **7.45,** Press Review in German. **8.30,** European Concert, relayed from **Lahti. 10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW., and **Freiburg, 527 kc/s, 570 metres.**—**12 Noon,** Popular Music on Gramophone Records. **1.15 p.m.,** Time, News, Weather and Programme Announcements. **1.30,** Gramophone Concert: A Morning in Sans-Souci (Kockert); Minuet (Boccherini); In the Rose Garden of Sans-Souci (Ailbout-Niel); In Sans-Souci singt eine Nachtigall (Noack); Rosentraum in Sans-Souci (Bernards); Rococo Gavotte (Kockert); Nächtliche Heerschau in Sans-Souci (Herzog). **2.0,** Concert arranged by the Post Office. **2.30,** Spanish Lesson. **3.0,** English Lesson for Beginners. **3.30,** Programme for Children. **4.30,** See **Frankfurt. 5.50,** Time, Weather and Agricultural Report. **6.0,** Talk: The Preservation of Buildings. **6.25,** Talk: Education under the Nazi Regime. **6.50,** Time and News. **7.0,** Transmission for all German Stations. **Leipzig-Hamburg.** Exchange Programme. **8.0,** Concert by the Stuttgart Philharmonic Orchestra, conducted by Ferdinand Drost. Soloists: Georg Beerwald (Violin) and Otto Seyfert (Harpsichord). Concerto in E for Violin, Strings and Harpsichord (Bach); Symphony (J. Chr. Bach); Grand March (Haydn). **9.0,** See **Berlin (Witzleben). 10.0,** Time, News, Weather and Programme Announcements. **10.25,** Pianoforte Sonata, Op. 2 (Brahms), played by Walter Rehberg. **11.0,** Lusamgärtlein—Spring Songs from Franconia for Speaking Voice and Organ (Max Dauthendey—Music by Wilhelm Locks), with the Composer at the Organ, relayed from the Ufa-Palast. **11.30** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**6.30 p.m.**, Programme for Children. **7.0,** Accordion Solos. **7.15,** Horse Racing Results, Market Prices and News. **7.25,** Local News. **7.30,** Sound Film Music. **7.45,** Concert by a Viennese Orchestra. **8.15,** Light Music. **8.30,** Orchestral Music. **8.45,** Military Music. **9.0,** Music-Hall

Programme. **9.30,** Light Music. **9.45,** Concert: Airs from (a) The Magic Flute (Mozart), (b) William Tell (Rossini), and (c) La Juive (Halévy); Balalaika Music and Russian Songs. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco: Overture, Mirella (Gounod); Viens avec nous, Petit from La Vivandière (Godard); Cornet Solo from Cristalline (Blémant); Marius (Pagnol); Frimoussette (Marceau). **11.0 to 12 Midnight,** Programme in English by the I.B.C. W. Brown-Constable announcing. **11.0,** Concert of Light Music by the I.B.C. (Ireland), Limited: The Clock is playing (Blaauw); Songs: (a) Along the Shores of County Down (Morrison), (b) The Dream from Manon (Massenet), (c) La Danza (Rossini), (d) The Bard of Armagh (Traditional); Britelodia Selection. **11.30,** Negro Spirituals; Old Plantation Songs: Bye and Bye; Sing you Sinners; Go down Moses; Shout for Happiness; Little David play yo' Harp; River stay 'way from my Door; Roll on Mississippi. **11.57,** I.B.C. Good-night Melody. **12 Midnight,** News Bulletin. **12.5 a.m. (Friday),** Orchestral Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.10 p.m.** till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**5.10 to 6.0 p.m.,** Orchestral Concert. **6.35,** Giornale Radio and Agricultural and Dopolavoro Notes. **7.0,** Time, Tourist Report, and Gramophone Records of Light Music. **7.20,** Giornale Radio. **7.45,** Gramophone Records (contd.). **8.0,** Announcements, Giornale Radio, Weather, and Gramophone Records of Variety Music. **9.0,** La Vestale—Opera in Three Acts (Spontini), conducted by Vittorio Gui, relayed from the Politeama Fiorentino. In the intervals, Talk on Giovanni Papini, Notes on Art, and Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning); and **5,969 kc/s, 50.26 metres (Evening);** 10 kW.—**11.0 to 11.15 a.m.,** Religious Information in French. **8.0 to 8.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres.**—**5.15 p.m.,** Sound Film Music on Gramophone Records. **5.55,** Talk: Theatre Week. **6.5,** Talk: Causes of and Measures against Unemployment. **6.30,** Legal Talk. **6.55,** Talk: Josef Madersperger, the Inventor of the Sewing Machine. **7.5,** Concert by the Vienna Symphony Orchestra, conducted by Max Schönherr. Soloist: Erich Zimmermann (Tenor). Overture, Der Hexenspiegel (Eysler); Serenade for Strings (O. Straus); Songs (Weinberger): (a) Verklungen, (b) Kahnfahrt, (c) Aber wisse, kleines Mädchen, (d) Abendfrieden; Prelude to Tatjana (Lehár); Es war ein kleiner Pikkolo from Irrlicht (Fall); Symphonic Poem, Endre und Johanna (Kálmán). **7.55,** Time, Weather and Programme Announcements. **8.5,** Talk on Animals. **8.30,** European Concert, relayed from **Lahti. 9.20,** News. **9.35,** Venice—Programme conducted by Ludwig Unger. **10.5,** Concert of Instrumental Music and Songs, relayed from the Hotel Krantz-Ambassador.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.**, Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Light Music on Gramophone Records. **12.30,** Weather Forecast. **12.35,** Twenty-fifth Concert for Schools, relayed from the Philharmonic. **2.0 to 3.0,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Popular Music on Gramophone Records. **3.35,** Talk. **3.40,** Variety Music on Gramophone Records. **4.15,** Intermediate French Lesson. **4.40,** Talk. **5.0,** Quartet in F Minor, Op. 95, No. 11 (Beethoven), by the Lever Quartet, on Gramophone Records. **5.40,** Topical Talk. **5.45,** Programme Announcements. **6.0,** Talk on Teachers' Holidays. **6.10,** Light Music, relayed from the Café Adria. In the interval, News. **7.0,** Miscellaneous Items. **7.20,** Agricultural Talk. **7.30,** Literary Talk. **7.45,** Radio Journal. **8.0,** Popular Music on Gramophone Records. **8.10,** Introductory Talk to the Following Transmission. **8.30,** European Concert, relayed from **Helsinki** (see **Lahti**). **10.0,** Reading. **10.15,** Sports Notes. **10.30,** Radio Journal. **10.25,** Popular Music on Gramophone Records. **10.55,** Aviation Weather Forecast and Police Notes.

WILNO

533 kc/s, 563 metres; 16 kW.—**6.0 p.m.**, See **Warsaw. 6.10,** Announcements. **6.15,** Light Music on Gramophone Records. **6.40,** Talk in Lithuanian. **6.45,** Miscellaneous Announcements. **7.0,** Reading. **7.10,** Letter Box. **7.30,** See **Warsaw. 8.0,** Concert of Request Gramophone Records. **9.0,** European Concert, relayed from **Lahti. 11.0,** Relay of Foreign Stations. **12 Midnight,** Close Down.

ZURICH.—See **Schweizerischer Landessender.**

FRIDAY

MAY THE FIFTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Mr. J. B. Priestley: "I'll Tell You Everything."
LONDON REGIONAL	"The Kentucky Minstrels," a Nigger minstrel show. Orchestral concert.
MIDLAND REGIONAL	"What's in the Wind," by R. Clements.
NORTH REGIONAL	"Fenwick," a feature programme by Edwin Lewis.
WEST REGIONAL	"Hey Nonny Notions, or Something of a Gambol," revue by Dorothy Worsley.
SCOTTISH REGIONAL	Excerpt from Handel's "Saul," from the Stevenson Hall, Scottish Academy of Music.
BELFAST	"Genevieve de Brabant," an operetta by Offenbach.

ABROAD

BERLIN (Witzleben)	7 p.m. "The Chronicle of a German Family" (Bruno Nelissen-Haken) (relayed by other German stations).
BRUSSELS (No. 1)	8 p.m. The Symphony Orchestra, conducted by A. Meulemans.
COPENHAGEN	9 p.m. A radio ball for the young generation.
PALERMO	8.45 p.m. Opera: "André Chénier," by Giordano.
PRAGUE	5.5 p.m. Brahms concert.
ROME	8.45 p.m. Military Band concert.
SOTTENS	8.30 p.m. Symphony concert from Geneva, conducted by Felix Weingartner.
STRASBOURG	8.30 p.m. Operetta: "The Land of Smiles," by Lehar.
WARSAW	8.15 p.m. The Philharmonic Orchestra, conducted by G. Fitelberg.

ATHLONE

725 kc/s, 413 metres; 60 kW., and **Cork, 1,337 kc/s, 224.4 metres.**—**1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Gramophone Concert. **6.0,** Programme for Children. **6.45,** News. **7.0,** Gardening Talk. **7.15,** Talk on Architecture. **7.30,** Time Signal. **8.0,** Concert by the Civil Service Choir. **8.30,** Music by the Station Orchestra. **8.45,** Uilleann Pipes. **9.0,** Anglo-Irish Songs by S. J. Campbell. **9.15,** Traditional Fiddle Music by B. Burke. **9.25,** Accordion Solos by Michael Grogan. **9.35,** Music by the Station Orchestra. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report and Close Down.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Records. **8.30,** Exchange Quotations. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes from the Cathedral, Weather Forecast, Messages to Seamen, Exchange Quotations and Market Prices. **10.5,** Concert by the Station Orchestra: Overture (F. W. Rust); Waltz, Volga, Volga (Noack); Italian Song (de Taeye); Minuet (Meyer). **10.30,** Song Recital by Pepita Ramos. **11.0,** Vicente Diez de Tejada reads from his own Works. **11.15,** Orchestral Concert relayed from the Café Español. **12 Midnight** (in an interval), News. **1.0 a.m. (Saturday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Notes, Tourist Talk and Dopolavoro Announcements. **8.20,** Giornale Radio and News. **8.30,** Time Signal and Announcements. **8.35** (approx.), Concert of Opera Music. Overture, La festa del corpo dei tiratori (Bohne); Baritone Solo from The Force of Destiny (Verdi); Soprano Solo from Dolores (Anteri-Manzocchi); Extracts from Il carillon magico (Pick-Mangiagalli); Baritone Solo from Hamlet (Thomas); Soprano Solo from Fedora (Giordano); Selection from Fasma (La Rotella); Interlude from Dafni (Mulè); Two Soprano Solos from Othello (Verdi); Baritone Aria from Don Giovanni (Mozart; Selection from Act IV of Andrea Chénier (Giordano); Soprano Aria from Cavalleria rusticana (Maseagni); Baritone Solo from La Favorita (Donizetti); Selection from Il re (Giordano). In the interval, Theatre Notes. **10.30,** Popular Music on Gramophone Records. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**6.55 p.m.,** Time Signal and Programme Announcements. **7.0,** Light Music on Gramophone Records. **7.30,** Talk. **8.0,** Recital of Folk Songs by Milan Timotic. **8.30,** Military Band Concert. **10.0,** News Bulletin, followed by Cigány Band Concert, relayed from the Rudnicanin Restaurant. **11.0,** Relay of the Uranak from the Ada Cigandija.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**12 Noon,** Weather for Farmers. **12.5 p.m.,** Popular Music on Gramophone Records, followed by Second Weather for Farmers. **12.55,** Time Signal. **1.45,** News. **2.0,** Gramophone Concert of Popular Music, relayed from **Berlin (Witzleben). 3.0,** Talk for Girls. **3.30,** Weather and Exchange. **3.45,** Reading (Will Vesper). **4.0,** Educational Talk. **4.30,** Concert from **Leipzig. 5.10,** Topical Talk. **5.30,** Dialogue: German Sports and Games in the Past. **6.0,** Poetry Reading. **6.5,** Hugo Kaun Choral Concert: Lebenslied; Hab Sonne im Herzen; Die Hütte; Alt-Heidelberg; Muttersprache; Busserl; Das Quartettchen. **6.30,** Talk: German Genealogical Research. **6.50,** Weather for Farmers, followed by Announcements. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** See **Stuttgart. 10.0,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Report on the Competition for the Mussolini Gold Cup at the International Horse Show in Rome, followed by Concert, relayed from **Frankfurt. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**5.55 p.m.,** Concert of Light Music by Alice Eich (Soprano), Oskar Aigner (Tenor), Erwin Höhne (Saxophone), and Ernst Erich Buder (Pianoforte). **6.35,** Music Notes. **6.45,** Topical Talk. **7.0,** Transmission for all German Stations: The Chronicle of a German Family (Bruno Nelissen-Haken), with Introduction by Harald Braun. **8.5,** Announcements. **8.10,** Concert by the Berlin Mandoline Orchestra, conducted by Bruno Henze. Overture in C in Italian Style (Schubert); Waltz, Roses from the South (Joh. Strauss); Reigen from Peterchens Mondfahrt (Schmalstich); Intermezzo, Grotesker Marsch (Schmalstich); Russian Dance No. 6 (Buller)an). In the interval, Songs by Berlin Composers, sung by the Station Choir, conducted by Maximilian Albrecht. **9.0,** Der Traum, ein Leben—a Drama (Franz Grillparzer). **10.30,** Weather, News, and Sports Notes. **10.35** (approx.), Dance Music, relayed from the Zoological Gardens. **12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**6.15 p.m.,** Radio Journal. **7.30,** News. **7.40,** Educational Talk. **7.55,** Lottery Results. **8.0,** Spanish Lesson. **8.15,** News. **8.30,** Orchestral Concert; Soloists, Mme. Reiss and M. Champiel. **10.30,** Trois Hommes en Habit—Sound Film, relayed from the Olympia.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**7.25 p.m.,** Pianoforte Sonata in F Minor, Op. 5 (Brahms). **8.0,** See **Brno. 9.0,** See **Prague. 10.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.**—**1.10 p.m.,** Gramophone Concert of Classical Music. **1.45,** Time, Weather, News, and Exchange. **2.5,** Variations and Potpourri on Gramophone Records. **2.45,** Programme, arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Programme for Young People. **4.10,** Vocal and Instrumental Concert; Hanne Wandzik (Pianoforte), Alfred Rudolph (Tenor), and Rainer Grund (Clarinet): Symphonic Etudes (Schumann); Songs (Schubert): (a) An Silvia, (b) Der Neugierige, (c) Rastlose Liebe; Etude, Op. 10, No. 12 (Chopin); Songs (Wolf): (a) Fussreise, (b) Gesellenlied, (c) Heimweh; Suite for Clarinet and Pianoforte (Baussnern); Songs (R. Strauss): (a) Wozu noch, Mädchen, (b) Du meines Herzens Krönelein, (c) Zueignung; Waltz in A Flat (Chopin). **5.30,** Agricultural Prices. **5.35,** Readings. **6.0,** Programme to be announced. **6.30,** Talk: Breslau's Lost Art Treasures. **6.50,** Weather for Farmers, Cattle Market Prices, and News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** A Little Serenade—Orchestral Concert: Eine kleine Nachtmusik (Mozart); Comedy (Franz Grillparzer); Serenade in Madrid (Boccherini). **8.40,** Woe to him who lies. **10.0,** Time Weather, News, Sports Notes, and Programme Announcements. **10.20,** Talk on Toledo. **10.40,** Dance Music from **Berlin (Witzleben). 12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by J. Janota. **4.55,** Dramatic Programme. **6.5,** Talk on Art. **6.15,** Programme for Workers. **6.25,** German Transmission: Sports Notes and Talk on German Poets. **7.0,** See **Prague. 7.10,** Talk on American Children. **7.25,** See **Moravská-Ostrava. 8.0,** Must the Mandarin die?—Radio Play (Fleichmann), with Music by M. Poot. **9.0,** See **Prague. 10.15,** Programme for Esperanto Enthusiasts. Overture, The Bartered Bride (Smetana); Moravian Duets (Dvorák); Poem (Fibich); May Song (Orovan); Polka (Kricka). In the intervals, Readings and Recitations. **11.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R.; 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Concert by the Small Station Orchestra, conducted by P. Leemans. Soloist, M. Wigy (Violin). March (Van Oost); Overture, Les dragons de Villars (Maillart); Scènes pittoresques (Massenet); Air and Trepak for Violin (Sassanov-Dushkin); Two Songs; Selection from Lakmé (Delibes); Simple aveu (Thomé); Waltz, Du-du-du (Stolz); Selection from La dame en décolleté (Yvain). **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert: French Military Marches and Refrains; Tambourin chinois (Kreisler); Où l'on entend une vieille boîte à musique (de Sévérac); Im Prater blühen wieder die Bäume (Stolz); Humoresque (Dvorak); Spanish Serenade (Bizet); Selection from Norma (Bellini); Sous-bois (Staub); Hawaiian Eyes (Coots); Selection from Casanova (Stranss); Dance from La vida breve (Falla); Mirage (Coates). **2.0,** Broadcast for Schools. **5.0,** Concert by the Radio Orchestra, conducted by Franz André: Aufzug der Holzpüppchen (Richter); Waltz, Missouri (arr. Logan); The Railway (Brusselmans); Romanian Mazurka (Rogister); Waltz, Edelweiss (Ziehrer); Selection from White Horse Inn (Benatsky); Ballet Fantasia (de Beriot); March, Jugend voran (Translateur); Chinese Dance (Eilenberg); Selection from Sleeping Beauty (Tchaikovsky). **6.0,** Talk: Insurance. **6.15,** Gramophone Concert of Popular Music. **6.45,** Beethoven Pianoforte Recital: Sonata, Op. 13—the Pathétique; Sonata, Op. 27, No. 2—the Moonlight. **7.15,** Talk. **7.30,** Legal Review and Literary Notes. **8.0,** Concert by the Symphony Orchestra, conducted by Meuleman. Soloists: Mlle. Simone Chislaine (Soprano) and Mme. Pouleur (Songs). Overture, Tannhäuser (Wagner); Songs: (a) Le Colibri (Chausson), (b) La Route d'emeraude (De Boeck), (c) Aria from Madame Butterfly (Puccini); Selection from Namouna (Lalo); Romanian Rhapsody (Enesco). **8.45,** Talk on Spa. **9.0,** Concert (contd.). Overture, Phèdre (Massenet); Selection from Gretna Green (Gnirand); Persian Dance, from Khovanstchina (Mussorgsky); Songs: (a) Aria from L'Amant jaloux (Gretry), (b) Aria from Manon (Massenet); Saint d'amour (Elgar); Dance of the Tumblers, from The Snow Maiden (Rimsky-Korsakov); Ballet égyptien (Luigini). **10.0,** Le Journal Parlé. **10.10,** The Listeners' Quarter of an Hour. **10.45,** Gramophone Records of Popular Music. **11.0,** La Brabançonne.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—Programme in Flemish.—**12 Noon,** Extracts from Rigoletto Opera (Verdi) on Gramophone Records. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans; March (Becce); Waltz, Nachtschwärmer (Ziehrer); Selection from The Drum-Major's Daughter (Offenbach); Souvenir for Violin (Drdla); In a Chinese Temple Garden (Ketelbey); Selection from The Carnival Fairy (Kálmán); Negro Lullaby (Clutsam); Foxtrot (Reisfeld). **2.0,** Educational Programme. **5.0,** Concert by the Symphony Orchestra, conducted by Mr. Meulemans: Overture, Il Seraglio (Mozart); Military Symphony (Haydn); Spring Song (Mendelssohn); Die Spinnerin (Mendelssohn); Albumblatt (Wagner); Invitation to the Waltz (Weber). **6.0,** Gramophone Records: When the King went forth to War (Koenemann); El puerto (Albeniz); Wiegenlied (Mozart); Cubana (Falla). **6.15,** Literary Programme. **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans: Prelude and Cortège from Déjanire (Saint-Saëns); Petite Suite No. 2 (de Micheli); Chanson sans paroles (Tchaikovsky); Violin Solo: Selection from Faust (Gounod-Sarasate); Serenade from Don Giovanni (Mozart); Marche orientale (Gilson). **7.15,** Talk: Carl Scharter reads from his novel, Carnival. **7.30,** Wireless Notes. **8.0,** Animals and Birds in Music—Concert by the Station Orchestra, conducted by Franz André. Soloist: Mr. Géodel (Baritone); The Whistler and his Dog (Pryor); The Cuckoo (Jonason); The Cuckoo (Saint-Saëns); L'âne et l'ânier (Léonard); L'âne et les pianistes (Saint-Saëns); Le cheval vapeur (Brusselmans); The Wooden Horses (Evans); Chat et souris (Léonard); Songs; Prelude (de Gallot); La colombe (de Gallot); La poule (Rameau); The Nightingale; The Cuckoo (Pasquini-Respighi). **8.45,** A Play (Schäke). **9.0,** Concert (contd.): Marche du Lion (Saint-Saëns); Die Biene (Schubert); The Canary (Poliakin); The Brontosaur (Sykes); La Cigale (Massenet); Le Cygne (Saint-Saëns); The Otary; Songs; Les petits ânes (Ibert); Jazz in the Zoo (Basilewsky): (a) Foxtrot, The Kangaroo, (b) Tango, The Camel, (c) Blues, The Elephant, (d) Charleston, The Squirrel, (e) Slow Waltz, The Blue Bird, (f) One-step, The Ostrich. **10.0,** Le Journal Parlé. **10.10,** Light Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Light Music and Romanian Music by the Sibiceano Orchestra. **6.0,** Radio Journal. **6.15,** Concert by the Sibiceano Orchestra (contd.). **7.0,** Educational Talks. **7.40,** Gramophone Concert of Light Music. **8.0,** Song Recital by Valentine Cretzoi. **8.20,** Military Band Concert. **9.0,** Talk. **9.15,** Concert of Military Music (contd.). **9.45,** Radio Journal. **10.0,** Humorous Programme.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **7.25** p.m. till Close Down.—**5.0 p.m.,** Pianoforte Recital. **5.30,** Shorthand Lesson. **6.0,** Concert from the Café Ostende. **6.55,** Review of Foreign Affairs. **7.10,** Talk on the Budapest International Fair. **7.30,** Rigoletto—Opera (Verdi) relayed from the Royal Hungarian Opera House. In the interval, News and Weather. After the Programme, Concert of Cigány Music from the Café Spolarich.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time Signal and Chimes from the Town Hall. **12.2 p.m.,** Concert by the Max Skalka String Ensemble, relayed from the Hotel d'Angleterre. **1.15,** Programme for Schools. **1.45 to 3.0,** Interval. **3.0,** Pianoforte Recital by Karla Bjarnov: Pieces (Debussy): (a) Prelude, (b) Sarabande, (c) Toccata; Nocturne in G (Chopin); Concert Etude in F Minor (Liszt). **3.20,** Concert by the Teddy Petersen Orchestra, relayed from the Wivex Restaurant. **5.0,** Programme for Children. **5.40,** Exchange and Fish Market Prices. **5.50,** Talk: Masterpieces of Danish Literature—Hans Andersen. **6.20,** German Lesson. **6.50,** Weather. **7.0,** News. **7.15,** Time Signal. **7.30,** Talk. **8.0,** Time Signal and Chimes from the Town Hall. **8.2,** Recital of Danish Duets by Olga Roeboe and Ingrid Gesmar. **8.20,** Programme by Per Knutzon. **8.30,** Extracts from the Sonata No. 5 in G Minor (Martini), for Harpsichord. **8.45,** Radio Play (Leck Fisher). **9.0,** Dance Music by the Louis Preils Band. In an interval at **10.0,** News. **11.15,** Dance Music by the Valencia Band. **12 Midnight,** Time and Chimes from the Town Hall. **12.2,** Concert by the Ritz Dance Band. **1.0 a.m. (Saturday),** Concert by the Nimbs Dance Band. **2.0** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**12 Noon,** Gramophone Concert of Light Music. **12.30**

MAY 5th **FRIDAY** *continued*

p.m., News. 12.45, Variety Concert. 5.30 to 7.0, Programme in English by the I.B.C.; Announcers: C. Danvers-Walker and B. McNabb. 5.30, Orchestral and Vocal Concert for Southampton and Winchester Listeners: Potpourri Overture (arranged Leggatt); The Dance of the Tea Dolls (Smith Hagen); Songs: (a) Now I'm in Love (Yellen), (b) Rocked in the Cradle of the Deep (Knight), (c) At Dawning (Cadman); In a Chinese Temple Garden (Ketelbey); Songs: (a) A Little Kiss each Morning (Woods), (b) I travel the Road (Thayer), (c) My Lovely Celia; The Clock and the Dresden Figures (Ketelbey). 6.15, Octet Concert, with Songs and Organ Solo, for Bournemouth and Weymouth Listeners: Extase; The Piccaninnies' Picnic; Song, The Crocodile; Serenade; Twilight on the Waters; Songs: (a) Kashmiri Song, (b) Temple Bells; Organ Solo: Weymouth Chimes; The Butterfly; Song, Pretty Polly Perkins; Humoresque; The Grasshoppers' Dance. 7.0, Radio Gazette. 7.20, Local News. 7.30, Popular Music on Gramophone Records. 7.45, Agricultural Talk. 8.0, Light Music on Gramophone Records. 8.30, Concert, relayed from **Le Havre.** 10.0 till Close Down, Programme in English by the I.B.C. 10.0, Dance Music by the Decolians: Lights of Paris; It always starts to rain; It happened in Monterey; Just a little closer; Linda; I don't mind walking in the Rain; Little Painted Doll; Got the Bench, got the Park; The Waltz you saved for me; Smile, darn ya, smile; Carry on; My Cradle is the Desert; With my Guitar and you; Lazy Day; Jolly Good Company. 11.0, Edward German Concert: Morris Dance and Torch Dance from Henry VIII; Selection from Merrie England; Songs: (a) Glorious Devon, (b) The English Rose; Shepherd's Dance from Henry VIII; Song, Rolling Down to Rio; Country Dance and Merrymakers' Dance from the Nell Gwynn Suite. 11.30, Vocal and Orchestral Concert: Overture Medley (arranged Carl Peters); Songs: (a) Roses of Picardy (Haydn Wood), (b) It is only a Tiny Garden (Haydn Wood); Duet: Dear Love of mine; Orchestra: Love in Cloverland (Peter); Songs: (a) Daddy (Behrend), (b) Bless this House (Taylor); Orchestra: Acclamations Waltz (Waldteufel). 12 Midnight, Club Concert for Whitby Listeners: Morning, Noon and Night (Suppé); Songs: (a) O Maiden, my Maiden, (b) Wayside Rose; Shenandoah; Cornet Solo: The Lost Chord; Selection from Cavalcade; Song, O Mistress mine; Sea Songs; Washington Greys March; Cornet Solo: I hear you calling me; Song: With a Song in my Heart; Blow the Man down; The Gladiators' Farewell. 1.0 a.m. (Saturday), Hawaiian Band; Bye-Bye Blues; Go Home and tell your Mother (McHugh); Old New England Moon; With my Guitar and you (Snyder); Land of the Might-have-been (Aderler); Lazy Louisiana Moon (Donaldson); Waltz, Morela (Cuvelier); Silv'ry Moon (Frazzini). 1.30, Song Recital: For you; Heartaches; Just one more Chance; Orchestra: Selection from Viktoria and her Hussar; Many Happy Returns of the Day; When you wore a Gingham Gown; Whistling in the Dark. 2.0, Dance Music by the Decolians: The Japanese Sandman; Balloons; Well, well, well; Always in my Heart; Jack in the Box; Butterflies in the Rain; Drifting and Dreaming; Old Father Thames; The Lady I love; Horses carry Tails; Where is this Lady?; This is the Rhythm for me; Can't we meet again?; Do you recall? 2.57, I.B.C. Good-night Melody. 3.0, Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—6.0 p.m., Talk: The Power of Words. 6.25, Dialogue: The Origin of Fairy Tales. 6.50, Time, Programme Announcements, Weather, and Economic Notes. 7.0, Transmission for all German Stations, relayed from **Berlin (Witzleben).** 8.0, See **Stuttgart.** 9.0, Eine Kolonie wird verschenkt—Radio Sequence (Hermann Schreiber). 10.0, Time, News, Weather, and Sports Notes. 10.30, Concert by the Radio Orchestra, conducted by Georg von Loeben: Small Comedy Suite (Wunsch); Suite, Wanderung (Scholz); Waltz, Hofballtänze (Joh. Strauss); Victoria Polka (Jos. Strauss); Polka Mazurka, Nachtschatten (Jos. Strauss); Waltz, Feenmärchen (Joh. Strauss); Waltz, Frauenwürde (Jos. Strauss); Patronessen-Polka (Joh. Strauss); Polka Mazurka, Der Klügere gibt nach (Joh. Strauss); Waltz, Denksprüche (E. Strauss); Waltz, Telegramme (Joh. Strauss). 12 Midnight (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—5.30 p.m., Talk: Germany and her Colonies. 6.5, Book Review. 6.30, Talk for the Country Woman: Gardening. 6.40, Frankfurt Exchange and Hamburg Market Prices. 6.50, Weather Report. 7.0, Transmission for all German Stations relayed from **Berlin (Witzleben).** 8.0, Concert by the Hamburg Chamber Orchestra, conducted by Gerhard Maasz: Military March No. 3 (Schubert); Overture, Der Schauspieldirektor (Mozart); Scottish Dances (Beethoven); Allegretto grazioso from the Second Symphony (Brahms); Waltz (Busoni); Intermezzo from the Divertimento (Graener); German Dances (Reger); Suite, Schloss Durance (Niemann); Lyric Intermezzo (Erdlen); Selection from Liselott (Künnecke). 9.0, See **Stuttgart.** 10.0, Time and News. 10.20, Topical Talk. 10.30 (from **Kiel**), Concert of Light Music.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.**—1.5 p.m., Gramophone Concert: Einzug schneidiger Truppen (Blankenburg); Adler von Lille (Blankenburg); Mit Willi Ostermann am Rhein (Ostermann); Regimental March (Neumann); Sedan-Marsch (Lange); Gute Nacht du mein herziges Kind (Abt); O, Jugend wie bist du so schön (Abt); Waldweben (Kollmaneck); Mein lieber Schatz (Nickel); Gesellschaftstyrolienne (Lindemann); Waldandacht (Joach); Im Schwarzwald (Rust); Die Hinterhuglidorfer Feuerwehr (Weiss-Ferdl); In Hamburg da wartet ein Mädel auf dich (Brennecke); Roseb aus dem Holsteinlande (Brennecke); Eine fidele Herrenpartie (Muth); Rosa-Marsch (Woitschach); Bienenhaus-Marsch (Schneider). In an interval at 1.20, News. 2.30, Sponsored Programme with Gramophone Records. 3.0, Agricultural Prices and Exchange Rates. 3.30, Programme for Children. 4.0, Talk for Women. 4.30, See **Leipzig.** 5.35, Talk: Pioneers in the Past and Now. 6.15, Agricultural Prices. 6.25 (from **Danzig**), Talk: The Mint-Masters' Guild. 6.50, Weather. 7.0, Transmission for all German Stations relayed from **Berlin (Witzleben).** 8.0, News. 8.5, The Struggle of the German Orders for Prussia—Historical Radio Play. 9.10, Gramophone Records, of Great Artists. 10.10, Weather, News and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to 5.40 p.m.).—12.40 to 4.40 p.m., Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 12.40, Time Signal. 12.41, Concert of Light Music by the Rentmeester Orchestra, with Gramophone Interludes. 2.50, Fashion Review. 3.10, Popular Music on Gramophone Records. 3.40, Talk: Do we understand our Children? 4.10, Talk. 4.40 to 8.40, Programme of the Workers' Radio Society (V.A.R.A.). 4.40, Light Music on Gramophone Records. 5.40, Programme for Children. 6.10, Concert by the Little V.A.R.A. Orchestra, conducted by H. de Groot: Black Eyes (arr. Gumpolini); An Hour in a Russian Village (Artemiev); The Thistle (Myddleton); Souvenir (Lubbe); Die letzten Tropfen (Kratze); Gramophone Records: Minuet (Boccherini); Chaconne (Durand); Waltz, Kunstlerleben (Joh. Strauss); Réveil du peuple (Gaveaux). 7.10, Concert by the Twinkling Five. 7.25, Organ Recital by Reginald Foort: Overture, William Tell (Rossini); Scottish Patrol (Amers); Pilgrims' Chorus from Tannhäuser (Wagner); Dance of the Hours from La Gioconda (Ponchielli). 7.55, Concert by the Twinkling Five (contd.). 8.10, Organ Recital (contd.); Hungarian Fantasia (arr. Foort); To a Wild Rose (MacDowell); In a Persian Market (Ketelbey); Second Serenade (Heykens); Musical Sketch (arr. Foort). 8.40 to 11.40, Programme of the Liberal Protestant Radio Society (V.P.R.O.). 8.40, Religious Address. 9.10, Concert. 9.40, Talk. 10.10, Concert (contd.). 10.40, Religious News. 10.45, News Bulletin. 10.55, Recitations. 11.25, Gramophone Records. 11.40 till Close Down, V.A.R.A. Programme; Concert by the Piatrogibas Quartet. 12.40 a.m. (Saturday), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW. Programme of the Catholic Radio Society (K.R.O.).—12.55 p.m., Concert by the K.R.O. Sextet. 2.25 to 2.40, Interval. 2.40, Organ Recital by Evert Haak. 3.40, Vocal and Instrumental Concert; Mlle. Dikboom (Soprano), M. J. Hendriks (Tenor), M. H. Hermann (Violin), M. A. van Elst (Flute), and Mlle. Boursee (Pianoforte). 5.40, Concert by the K.R.O. Boys. 6.10, Literary Talk. 6.30, Concert (contd.). 6.55, Tourist Talk. 7.10, Concert (contd.). 7.50, Talk. 8.10, Police Notes. 8.25, Brahms Concert by the K.R.O. Orchestra and Choir; Conductor: J. Gerritsen; Soloists: Mlle. Annie Wond (Contralto) and M. F. Hinze (Violin); Academic Festival Overture, Op. 80; Violin Concerto in D, Op. 77; Rhapsody for Contralto. In the interval, News and Light Music on Gramophone Records. 10.30, Popular Music on Gramophone Records. 11.10, News. 11.15, Concert by the K.R.O. Orchestra: Overture, Die Fledermaus (Joh. Strauss); Waltz, Morgenblätter (Joh. Strauss); Selection from The Gipsy Baron (Joh. Strauss). 11.40, Variety Music on Gramophone Records. 12.40 a.m. (Saturday), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—3.0 p.m., Theatre Guide, News, Exchange, and Racing Results. 8.15, Esperanto Lesson. 8.30, Concert of Light Music. 9.0, Weather and News. 9.15, Concert. 9.45, Jazz Music, relayed from the Palais de la Méditerranée. 12 Midnight till Close Down, Programme in English by the I.B.C. Announcer: H. K. Hitchcock. 12.0, Vocal and Orchestral Concert: Berceuse, from the Tempter (German); Les trésors de Columbine (Drigo); Air from The Princess of Kensington (German); Song, Juanita (Norton); Shepherd's Dance from Henry VIII (German); Merrymakers' Dance from Nell Gywnn (German); Liebestraum (Liszt); Rakoczy March (Berlioz). 12.30 a.m. (Saturday), Dance Music: Dip Your Brush in the Sunshine; Misty mornin'; Let a Little Pleasure interfere with Business; Saratoga Swing; Washboards get together; Stevedore Stomp; Kazoo; The Dicty Glide. 12.57, I.B.C. Good-night Melody. 1.0, Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—7.0 p.m., Talk: Emile Zegadlowicz, Poet. 7.15, Announcements and Gramophone Records of Light Music. 7.25, Sports News. 7.30, See **Warsaw.** 11.0, Letter Box in French.

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—7.0 p.m., Time, Weather, and News. 7.30, Divine Service. 8.0, News. 8.10, Popular Concert. 8.40, Medical Talk. 9.0, Variety Music. 9.20, Talk on the Jewish Problem in Lithuania. 9.40, Sports Notes. 9.50, Popular Concert. 10.30 (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by **Helsinki, 815 kc/s, 368.1 metres.**—6.15 p.m., Radio Play (Frisk). 6.40, Talk. 7.5, Choral Concert, conducted by Thure Sandelin, relayed from the University. Soloist: Erik Lindholm (Tenor). 8.45, News in Finnish. 9.0, News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12 Noon, See **Stuttgart.** 12.50 p.m., Weather, Time, and Announcements. 1.0, Concert conducted by Wolf: March, Heil den braunen Bataillonen (Müller-Hagen); Overture, Der Erlenhügel (Kuhlau); Waltz, Diesen Kuss der ganzen Welt (Ziehrer); Selection from Carmen (Bizet); Song, O Maienzeit, O Liebestraum (Brandt); Fantasia, Sang und Klang aus dem Osten (Eberle); Perpetuum mobile—a Musical Joke (Joh. Strauss); Song Potpourri, Deutscher Sang (Hanneman). In an interval at 2.0 (approx), Announcements. 2.30, Sponsored Programme with Gramophone Records. 3.30, Economic Notes and Time. 3.50, Programme for Young People. 4.30, Concert by the Stauch Trio and the Chamber Choir of the Cologne Singakademie; Conductor, Hans Morschel: Choir: (a) Choral and Folk Melody, Wächterruf (arr. Blech), (b) Folk Song, Frühlingsreigen (arr. Braut); Trio in E (Mozart); Choir: (a) Folk Song, Morgengruss (arr. Riemann), (b) Sandmännchen (arr. Rudorff), (c) Folk Song, Frau Nichtigall (arr. Röntgen), (d) Folk Song, Kapitän und Leutenant (arr. Woyrsch); Trio in G, Op. 1, No. 2 (Beethoven). 5.50, Technical Talk. 6.5, Talk on Plants. 6.25, English Conversation. 6.50, Weather, Time, Economic Notes, and Sports Results. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, Announcements. 8.5, Gramophone Records of Philipp Dreisbach (Clarinet) and the Wendling String Quartet: Clarinet Quintet in A (Mozart); Andante cantabile from the String Quartet in F, Op. 3, No. 5 (Haydn). 8.45, Der Doktor Eisenhart—Radio Picture in Four Scenes (Josef Winckler). 10.5, Announcements, Educational Notes, and Sports Results. 10.35, Concert from **Frankfurt.** 12 Midnight (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—12.5 p.m., Concert by the Planen Municipal Orchestra, conducted by Willy Steffen: Festival March (Vignau); Overture, Aladdin (Reinecke); Nepomuk—Suite, Op. 49 (Möllendorf); Two Intradas for String Orchestra (Hasler); Invitation to the Dance, Op. 65 (Weber); Symphonic Burlesque, Harlekinstreiche (Schroeder); Overture, Der faule Hans (Ritter); Two Military Marches (Elgar); Rigaudon in F Minor (Wachs); Concert Overture, Im Walde (Brüll). In an interval at 1.0, News, Weather and Time. After the Concert, Exchange. 2.30, Art Review and Film Notes. 3.15, Programme for Country Women. 3.35, Market Prices. 4.0, Talk: The Stars in May. 4.15, Gardening Talk. 4.30, Concert by the Dresden Philharmonic Orchestra, conducted by Hilmar Weber: Comedy Overture (Kleemann); Suite No. 1 (Ambrosius); Selection from Die toten Augen (d'Albert); Prelude, Triumph des Lebens (Peterka). 5.30, Book Review. 5.50, Market Prices, Weather and Time. 6.0, Talk: A Visit to the Sachsen Youth Hostel at Pötscha-Wehlen. 6.25, Musical Handwriting—a Talk with Rudolf Pfenninger, the Inventor. 6.45, Programme to be announced. 7.0, Transmission for all German Stations, relayed from **Berlin (Witzleben).** 8.0, Concert by the Radio Orchestra, conducted by Theodor Blumer: Overture, Die Felsenmühle (Reissiger); Ecossaises (Beethoven); Lyric Suite (Grieg); Waltz, Grüss an Wien (Baussnern); Selection from A Masked Ball (Verdi); Pieces from the Small Suite for Orchestra (Maass). 9.0, News. 9.10, Talk. 9.45, Brahms Song Recital by Elisabeth von Pander (Contralto). 10.15, News. 10.20, Gramophone Concert of Popular Music. 11.0 (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—6.0 p.m., Quintet Concert. 7.0, French Lesson. 7.30, Talk on Geology. 8.0, Concert of Chamber Music. 9.0, Weather and News Bulletin. 9.30, Musical Programme from Café Zvezda. 10.30, Close Down.

LWOW

788 kc/s, 381 metres; 16 kW.—7.0 p.m., Literary Talk. 7.15, Miscellaneous Items. 7.30 to 12 Midnight, See **Warsaw.** 12 Midnight (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South-East. 8.30, Rip Van Winkle—Operetta (Planquette), relayed from the Théâtre de la Porte St. Martin, Paris. News after the Programme.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—11.30 p.m., Concert of Popular Music. 11.45 (in an interval), Radio Chronicle. 12.35 a.m. (Saturday), Answers to Correspondence. 12.40, Spanish-South American Talk. 12.45, Light Music. 1.0 (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—8.0 p.m., Chimes, Exchange Quotations, Programme of Musical Novelties and Variety Items by Ramon Gomez de la Serna. 9.15, News Bulletin and Political Review. 9.30 to 10.30, Chimes, Time Signal and Political Review. 10.40 (approx), Concert of Galician Music with Introductory Talk. 12.45 a.m. (Saturday), News Bulletin and Programme Announcements for Listeners Abroad. 1.0, Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—7.25 p.m., Concert by a Village Brass Band. 8.0, See **Brno.** 9.0, See **Prague.** 10.15, See **Brno.** 11.0 (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nurnberg, 1,256 kc/s, 239 metres.**—4.30 p.m., Concert by the Station Orchestra, conducted by Hans A. Winter; Soloist: Olga Wismüller (Soprano). 5.45, Talk on the German Geographer, Ferdinand von Richthofen. 6.5, Talk: The Industrial Problems of the Saar. 6.25, Time, Weather, and Agricultural Notes. 6.35, Das heilige Feuer—Play (Kölsch). 7.0, Transmission for all German Stations, relayed from **Berlin (Witzleben).** 8.0, Acts 2, 3, and 4 from The Force of Destiny—Opera (Verdi), relayed from the National Theatre. 10.20, Time and News.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—5.15 p.m., Light Music on Gramophone Records. 6.0, French Lesson. 6.30, Concert of Chamber Music by the Philharmonic Quartet. 7.0, Announcements, Weather, and News. 7.30, English Lesson. 8.0, Time Signal. 8.1, National Programme, relayed from Kongsvinger: Talk, and Concert by a Children's Choir, the Railway Choir, and the Kongsvinger Music Society. 9.40, Weather and News. 10.0, Topical Talk. 10.15, Readings. 10.45 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Report, Report of the Royal Geographical Society and Giornale Radio. **8.20,** Variety Music on Gramophone Records. In the interval at **8.30,** Time Signal and Announcements. **8.45.** André Chenier—Opera in Four Acts (Giordano). In the intervals, Talk, Miscellaneous Notes and News.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**6.45 p.m.,** Theatre Review. **7.0,** Le Journal Parlé. **8.20,** Weather Report. **8.30,** Musical and Literary Programme for Young People. **9.15,** Orchestral Concert, conducted by Edouard Flament. Selection from Manon Lescaut (Puccini); Violin Solo, Un fête à Aranjuez (Demerssemann); 'Cello Solo; Dans les Champs (Brusselmans); Loin du village (Goublier); Juegos (Turina). **10.0** (approx), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Sponsored Talk. **7.10,** Light Music on Gramophone Records. **7.55,** Review of the Week. **8.0,** Talk on Music. **8.15,** Interval. **8.30,** Concert by the Station Symphony Orchestra: Overture, Moina (de Lara) Paysages normande (G. Sporck), conducted by the Composer; Prelude to Aphrodite (Erlanger); Selection from Faust (Lazzari); Noel berrichon (Ronsseau); Histoires (Ibert); Selections from Colin-Maillard (Guiraud). **10.30,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Talk for Jews: French Jews in the Middle Ages. **12.30 p.m.,** Gramophone Concert: Overture, The Magic Flute (Mozart); Humoresque (Dvorák); La Procession (Franck); Selection from Daphnis et Chloé (Ravel). **1.0,** Exchange. **1.5,** 'Cello Recital by Jeanne Fromont-Delune: Aria (Tartini); Allegro (Caporale); Sicilienne (Porta); Menuet varié (Caporale); Concert Piece (Delune); La Libellule (Delune). **1.30,** Exchange. **1.35,** Gramophone Concert (contd.): Aria from Tannhäuser (Wagner); Le Carnaval de Venise (Benedict); Thamar (Balakirev). **2.0,** Exchange and Announcements. **3.45,** Exchange and Market Prices. **4.30,** Elementary English Lesson. **6.10,** Agricultural Talk. **6.30,** Gramophone Records of Light Music. **6.50,** Social Assurance Report. **7.0,** A Dialogue. **7.20,** Gramophone Records: Arab March (Ganne); Mexican Serenade (Terese); Inch Alla (Padilla); Selection from Goyescas (Granados); Blumengeflüster (von Blon); Happy Days are here again (Milton-Ager). **7.45,** Commercial Prices and News. **8.0,** Readings from the Works of Colette. **8.30,** News and Weather. **8.40,** Gastronomic Review. **8.45,** La Traviata—Opera (Verdi), on Gramophone Records, by the Cast of the Scalá, Milan. In the interval, at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**5.0 p.m.,** Music Appreciation Hour, Walter Damrosch conducting, from **New York.** **7.30,** Health Talk by Dr. Royal S. Copeland. **7.35,** KDKA Home Forum. **7.45,** Utility Hall Programme. **8.0,** Betty and Bob, from **New York.** **8.15,** International Sunday School Lesson by Rev. S. S. Lappin. **8.30,** John Dunlap (Tenor). **8.45,** D.A.R. Programme. **9.0,** Teaberry Baseball Scores. **9.5,** Business News. **9.15,** S.A.I. Musicale Carnegie Tech Chapter. **9.30,** Weather Reports. **9.31,** Market Reports. **9.45,** Programme to be announced. **9.57,** David Lawrence Dispatch. **10.0,** Teaberry Baseball Scores. **10.5,** Muskingum College Music Clubs. **10.15,** Dick Daring. **10.30,** The Singing Lady, from **New York.** **10.45,** Little Orphan Annie. **11.0,** Our Daily Food—The Story of Food by Hendrik Van Loon, from **New York.** **11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** KDKA Orchestra. **11.45,** To-day's News by Lowell Thomas, from **New York.** **12 Midnight,** Pepsodent Amos 'n' Andy, from **New York.** **12.15 a.m. (Saturday),** Adventures of Aunt Lulu: KDKA Players. **12.30 to 3.0, New York** Relay. **12.30,** Five Star Theatre—Charlie Chan. **1.0,** Nestle's Programme. **1.30,** Time Signal and Adventures in Health. **1.45,** Howard Thurston the Magician. **2.0,** The First Nighter. **2.30,** Armour Programme. **3.0,** Dr. Curtis Howe Springer.

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.0 kW.—**6.0 p.m.,** Talk. **6.20,** Missionary Talk. **6.35,** Talk: The Historical Bases of Contemporary Poland. **6.50,** Talk. **7.5,** Miscellaneous Announcements and News. **7.28,** Time Signal. **7.30,** See **Warsaw.** In the interval, Theatre Notes and Programme Announcements. **10.40,** Time, Sports Notes and Police Announcements. **10.45,** See **Warsaw.** **10.50,** Announcements. **11.0,** Dance Music from the Café Esplanade. **11.50** (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW. **4.10 p.m.,** See **Brno.** **4.55,** Talk on the Spanish Republic. **5.5,** Brahms Centenary Concert by the Station Quartet. Pianoforte Trio in B, Op. 8; String Quartet in A Minor. **6.5,** Agricultural Talk. **6.15,** Talk on the Middle Classes. **6.25,** News in German. **6.30,** German Transmission: A Medical Talk for Women. **7.0,** Chimes and News. **7.10,** Reading. **7.25,** See **Moravská-Ostrava.** **8.0,** See **Brno.** **9.0,** Time. **9.1,** Reading. **9.10,** Concert by the Station Orchestra, conducted by O. Parik. **10.0,** Time, News and Sports Notes. **10.15** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.**—**7.30 p.m.** (from **Geneva**), Talk: Science and Precious Stones. **8.0** (from **Lausanne**), Talk. **8.30** (from **Geneva**), Symphony Concert by the Radio Suisse Romande Orchestra, relayed from the Reformation Hall. Part I, conducted by Felix Weingartner: Overture, Prometheus (Beethoven); Symphony No. 1 in D (Schubert). Part II, conducted by Mme. Carmen Studer: Symphony in E Flat (Mozart); Entr'acte No. 2 from Rosamunde, Op. 26 (Schubert); Waltz, Kunstlerleben (Joh. Strauss). **10.0,** News and Weather. **10.10** (from **Geneva**), Talk: The Work of the League of Nations. **10.30** (approx.), Close Down.

REYKJAVIK

250 kc/s, 1,200 metres; 21 kW.—**9.30 p.m.,** Weather Report. **9.40,** Musical Programme and Announcements. **10.0,** Chimes and News Bulletin. **10.30,** By the Fireside.

RIGA

572 kc/s, 525 metres; 15 kW.—**6.0 p.m.,** Concert of Light Music. **6.40,** Latvian Lesson. **7.10,** Weather. **7.15,** Brahms Centenary Concert: Fourth Symphony; Trio in B; Serenade in D; Tragic Overture; Hungarian Dance. In the intervals at **8.0,** News; and at **9.0,** Weather and News. **9.30,** Dance Music. **10.30** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres;** and **2RO, 11,810 kc/s, 25.4 metres.**—**1.0 to 2.15, p.m.,** Orchestral Concert: Sangue gitano (Mattani); Edra (Carducci); A.B.C. to Z (Chiarelli); Selection from Francesca da Rimini (Zandonau); Bacchanale (Azzoni); I kiss you again (Whiting); Scènes antiques (Larrieu); Melody (Allan); Aprile (Tosti); Per me, per te (Rizza). **5.0 (Naples),** Programme for Children and Sports Notes. **5.10,** Announcements. **5.15,** Exchange and Giornale Radio. **5.30 to 6.15,** Vocal and Instrumental Concert. **7.0 (Naples),** Shipping and Sports Notes. **7.10,** Agricultural and Dopolavoro Notes. **7.20,** Giornale Radio. **7.30,** Sports Notes and Tourist Report. **8.0,** Time and Announcements. **8.5,** Report of the International Institute of Agriculture (in Italian, French, English, German, and Spanish). **8.30,** Talk: How to read Ariosto's Works. **8.45,** Military Band Concert, conducted by Andrea Marchesini. Part I: Theme, with Variations, from the Symphony, Die ländliche Hochzeit (Goldmark); Symphonic Poem, Sauto Stefano (Pinna); Symphonic Poem, L'apprenti sorcier (Dukas). **9.30,** Come sarà—Comedy in One Act (Eugenio Perego). **10.0,** Concert (contd.). Part II: Brazilian Songs and Dances (Respighi); Bourrée (Pennacchio); Slav March (Tchaikovsky); Three Dances from Nell Gwynn (German); The Steel Foundry (Mossolov). **10.55,** News Bulletin.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**9.0 p.m.,** Biblical Drama. **9.15 to 10.0** (approx.), **New York** Relay. **9.15,** Moore Triangle. **9.30,** Echoes of Erin. **9.45 to 10.0** (approx.), Lady Next Door. **12.45 a.m. (Saturday),** Stock Reports. **1.0,** Cities Service Concert, from **New York.** **1.30, WYG** Farm Forum. **2.0, to 3.30, New York** Relay. **2.0,** Best Foods Musical Store. **2.30,** Pond's Programme. **3.0,** Chevrolet Programme. **3.30,** Richfield Country Club from **New York,** followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER; 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**12.28 p.m.,** Time Signal, Weather, and News. **12.40** (from **Zürich**), Concert by a Small Orchestra. **1.35** (from **Zürich**), Weather and Exchange. **3.30** (from **Berne**), Light Music on Gramophone Records. **4.30,** Nature Talk for Children. **5.0** (from **Berne**). Light Music on Gramophone Records. **5.30,** Weather Report. **6.30** (from **Berne**), Talk: Spanish Schools. **7.0** (from **Berne**), Time, Weather, Market Prices, Tourist Report, and Sports Notes. **7.20** (from **Berne**), Programme to be Announced. **9.30,** Weather and News. **9.40** (from **Berne**), Programme to be Announced. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**5.5 p.m.,** Scout Report. **5.25,** Accordion Music. **5.50,** Reading. **6.15,** Popular Music on Gramophone Records. **7.15,** Weather and News. **7.30,** Talk: Juan Ruiz, Archpriest of Hita, and Poet. **8.0,** Brahms Concert, by the Ruthströms Quartet and Marianna Mörner. **8.45,** Bettine One-Act Play (de Musset). **9.45,** Weather and News. **10.0,** Orchestral Concert: Petite Suite de Concert (Coleridge-Taylor); In the Teahouse with a Hundred Steps (Yoshitomo); German Dances (Schubert); Un peu d'amour (Silesu); Tango, La Jana (Amadei); Lehariana (Geiger). **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Variety Music on Gramophone Records. **12.45 p.m.,** News Bulletin. **1.0,** Time Signal. **1.1,** Exchange. **1.5,** Opera Music on Gramophone Records. **2.0 to 4.45,** Interval. **4.45,** Literary Talk in French—Stendhal. **5.0,** Orchestral Concert, conducted by Roskam: Eastern March (Heinecke); Waltz, Lotusblumen (Ohlsen); Serenade (Moszkowsky); Violin Solo Chanson (Tchaikovsky); Comedy Overture (Keler-Béla); Selection from Die geschiedene Frau (Fall); Extase (Ganne); La Lettre de Manon (Gillet); Selection from Ta Bouche (Yvain); Romanian March (Ganne). **6.0,** Chamber Music, relayed from **Lille, 1,130 kc/s (265.4 metres).** **7.0,** Talk in German. **7.15,** Talk in French. **7.30,** Time Signal. **7.31,** News Bulletin. **7.45,** Gramophone Concert: Selection from The Bird Fancier (Zeller); Der Roschochzeitszug (Jessel); Chinese Serenade (Siede); Japanese Dance (Yoshitomo); Tin Soldiers (Kochert); Cinderella (Dicker); The Squirrel (Elliot); The Mill (Evans). **8.15,** Press Review in German. **8.30,** The Land of Smiles—Operetta in Three Acts (Lehár). In the interval at **9.30,** Press Review in French. **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg 527 kc/s, 570 metres.**—**12 Noon,** Orchestral Concert: Helenen-Marsch (Liebbert); Waltz, Mein Lebenslauf ist Lieb und Lust (Joh. Strauss); Mattinata (Leoncavallo); Lortzings Lieblingskinder (Urbach); An den Frühling (Grieg); La Paloma (Yradier); Potpourri, Quintessenzen (Morena); Un peu d'amour (Silesu); Tango, Willst du ein bisschen Glück an mich verschwenden (Roland); Die Wache zieht auf. **1.15,** Time Signal, News, Weather Report and Programme Announcements. **1.30,** Marches from the Time of Frederick the Great, on Gramophone Records. **2.0,** Concert arranged by the Post Office. **2.30,** Advanced English Lesson. **4.0,** Recital of Songs by Schubert, by Adolf Harlacher (Tenor); Morgenlied; Der Wachtelschlag; Ganymed; Im Frühling; Liebesbotschaft; Der Blumenbrief; An den Mond; Nacht und Tränme; Nachtstück. **4.30,** Spring: Variety Programme. **5.45,** Time Signal, Weather Report, and Agricultural Notes. **6.0** (from **Mannheim**), Talk: The Revolution in the German Municipalities. **6.50,** Time Signal and News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** Orchestral Concert, conducted by Gustav Görlich: Dragoner-Marsch (Joh. Strauss); Overture, Flotte Bursche (Suppé); Waltz, Weana-Madln (Ziehrer); Parade of the Tin Soldiers (Jessel); Overture, A Night in Venice (Joh. Strauss); Polka-Mazurka, Die Libelle (Joh. Strauss); Overture, Poet and Peasant (Suppé). **9.0,** The Korfes Detachment—Radio Play about the Wars of Liberation. **10.0,** Time Signal, News, Weather Report, and Programme Announcements. **10.30,** Walter Niemann in a Recital of his own Pianoforte Compositions: Hamburg—a Cycle of Thirteen Descriptive Pieces. **11.0,** Concert from **Frankfurt. 12 Midnight,** Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**6.30 p.m.,** Overture, Tannhäuser (Wagner), by the Symphony Orchestra. **6.45,** Light Music. **7.0,** Dance Music. **7.15,** Horse-Racing Results, Market Prices, and News. **7.25,** Local News. **7.30,** Operetta Music. Airs from (a) Les Cloches de Corneville (Planquette), (b) Bambolina (Lehar), and (c) La Poupée (Audran). **7.45,** Military Music. **8.0,** Music by a Viennese Orchestra. **8.30,** Accordion Solos. **8.45,** Sound Film Music. **9.0,** Concerto in A for Violin (Mozart). **9.30,** Operetta Music: Airs from (a) La Mascotte (Audran) and (b) Azor (Gabaroche). **9.45,** Military Music. **10.0,** Orchestral Music. **10.15,** North-African News. **10.30,** Concert for Listeners in Morocco: Selection from the Desert Song (Romberg); Air from Lohengrin (Wagner); The Dancing Jack (Stolz); Chant sans paroles (Tchaikovsky); La Java des Pompons rouges (Dequin). **11.0,** Concert by the Symphony Orchestra. **11.30 to 12 Midnight,** Programme in English by the I.B.C. W. Brown-Constable announcing. **11.30,** Dance Music: Always in my Heart; Here lies Love; Till to-morrow; Please; When the Morning rolls around; Try a little Tenderness; How are you; Let's all dance the Polka. **11.57,** I.B.C. Good-night Melody. **12 Midnight,** News Bulletin. **12.5 a.m. (Saturday),** Opera Music: Selection from Il Trovatore (Verdi); Selection from William Tell (Rossini). **12.15,** Chansonnettes. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**6.35 p.m.** till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**6.35 p.m.,** Giornale Radio and Agricultural and Dopolavoro Notes. **7.0,** Time, and Report of the Royal Geographical Society. **7.20,** Giornale Radio. **7.45,** Gramophone Records of Light Music. **8.0,** Announcements, Giornale Radio, Weather, and Gramophone Records of Popular Music. **8.30,** Talk. **8.45,** Gramophone Records (contd.). **9.0,** Symphony Concert. Talk in the interval. **11.0,** Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and **5,969 kc/s, 50.26 metres (Evening);** 10 kW.—**11.0 to 11.15 a.m.,** Religious Information in German. **8.0 to 8.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres;** and **Linz, 1,220 kc/s, 245.9 metres.**—**5.15 p.m.,** Song Recital by Hanna Schwarz (Soprano) and Hans Wrana (Baritone): An die Leyer (Schubert); Der Doppelganger (Schubert); Der Erlkönig (Schubert); Herr Oluf (Löwe); Archibald Douglas (Löwe); Es zürnt das Meer (Marx); Der bescheidene Schäfer (Marx); Suleika (Schoeck); Two Songs from Goethe's Venezianische Epigramme (Schoeck); L'adieu (Honegger); Die Glocken (Honegger); Scottish Airs: (a) Before the Town of Edinburgh, (b) The Piper of Dundee. **5.55,** Tourist and Traffic Report. **6.10,** Talk: Experiences of a Sports Doctor. **6.25,** Sports Notes for the Week. **6.35,** Talk: The Work of the State Opera House. **6.50,** Radio Report of a Visit to the Research Laboratories of the Technical Museum. **7.25,** Styrian Peasant Music. **7.50,** Time, Weather Report, and Programme Announcements. **8.0,** Readings from the Ballads of Schiller. **8.30,** Wallenstein's Camp—Radio Play (Hans Nüchtern). **9.30,** Music on Paper—a new Musical Notation. **10.0,** News, Weather Report, and Market Prices. **10.15,** Traffic Report. **10.20,** Dance Music from the Café de Paris.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Light Music on Gramophone Records. **1.20,** Weather Forecast. **1.25 to 3.10,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Aviation Report and Anti-Gas Report. **3.30,** Talk on Maritime and Colonial Affairs. **3.35,** Review of Periodicals. **3.50,** Popular Music on Gramophone Records. **4.40,** Talk on Hygiene. **5.0,** Concert of Chamber Music relayed from the Pod Bukietem Restaurant: March (Fucik); Tango, Nydia (Rizzardi); Potpourri of Popular Melodies (arr. Rachon); Serenade (Siede); Waltz, L'Eloignement (Waldteufel); 'Cello Solo: Melody (Paderevsky); Hungarian Dance, No. 1 (Brahms); Three Hungarian Songs (arr. Rachon); Intermezzo—The Butterfly (Bocquoi). **5.55,** Programme Announcements. **6.0,** Light Music relayed from the Café Italia. In the interval, News. **7.0,** Miscellaneous Items. **7.20,** Talk: Flax and Wool. **7.30,** Talk. **7.45,** Radio Journal. **8.0,** Talk on Music. **8.15,** Symphony Concert by the Warsaw Philharmonic Orchestra, relayed from the Harmonie. Conductor: G. Fitelberg. Soloist: Robert Casadesus (Pianoforte). Overture, Il Seraglio (Mozart); Pianoforte Concerto in A (Liszt); Pianoforte Concerto (Casadesus); Harnasie—Ballet (Szymanowsky). In the interval, Literary Talk. **10.40,** Sports Notes. **10.45,** Radio Journal. **10.55,** Aviation Weather Forecast and Police Notes. **11.0,** Dance Music relayed from **Cracow, 959 kc/s, 312.8 metres.**

WILNO

533 kc/s, 563 metres; 16 kW.—**6.0 p.m.,** See **Warsaw.** **6.40,** Talk for the Poles in Lithuania. **6.55,** Miscellaneous Announcements. **7.0,** Reading. **7.10,** Topical Talk. **7.20,** See **Warsaw. 12 Midnight,** Close Down.

ZURICH.—See **Schweizerischer Landessender.**

SATURDAY

MAY THE SIXTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	"The Kentucky Minstrels." Community singing programme.
LONDON REGIONAL	Running commentary on the Rugby League Final, from Wembley. Three "No" plays of Japan.
MIDLAND REGIONAL	"Etc. . . . Etc. . . . One Inconsequential Thing After Another, feature programme.
NORTH REGIONAL	Orchestral concert.
WEST REGIONAL	Band programme of works by Alford.
SCOTTISH REGIONAL	"Mason's Words," a cabalistic comedy by D. Scott and A. Fraser.
BELFAST	"The Bohemian Girl," relayed from the Ulster Hall.

ABROAD

BRATISLAVA	8 p.m. Opera: "Boccaccio" (Suppé) (relayed by **Prague**).
COPENHAGEN	8 p.m. Opera: "Don Giovanni" (Mozart), from the Royal Theatre.
FRANKFURT	8.45 p.m. Operetta: "Glückliche Reise" (Künneke) (relayed by **Stuttgart**).
LANGENBERG	7 p.m. Concert from Cologne, conducted by Buschkötter (relayed by other German stations).
PALERMO	8.45 p.m. Operetta: "I Granatieri," by Valente.
ROME	8.45 p.m. Operetta: "Si," by Mascagni.
TURIN	8.45 p.m. Operetta: "Viktoria and her Hussar," by Abraham.
WARSAW	10.15 p.m. Chopin pianoforte recital by J. Turczynsky.

ATHLONE

725 kc/s, 413 metres, 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Gramophone Concert. **6.0,** Gramophone Concert of Popular Music. **6.45,** News. **7.0,** Talk on Recently Published Books. **7.15,** Gaelic Talk. **7.30,** Time Signal. **7.32,** Music by the Station Orchestra. **8.0,** Vocal Duets by T. Keane and W. F. Watt. **8.20,** Music by the Station Orchestra (contd.). **8.40,** Vocal Duets (contd.). **9.0,** Concert by the Dublin Banjo Club. **9.25,** Soprano Solos by Letitia Ennis. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

(EAJ1), 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Programme for Children. **8.0,** Request Gramophone Concert. **8.30,** Exchange Quotations and Catalan Grammar Lesson. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes from the Cathedral. Weather Forecast, Exchange Quotations, and Market Prices. **10.5,** Concert by the Station Orchestra: March (Heber); Habanera, La ultima lágrima (Cotó); Tibetan Dance (Dreyer); Overture, Rienzi (Wagner). **10.30,** Programme, relayed from **Madrid (EAJ7). 12 Midnight** (in an interval), News.

BARI

1,112 kc s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Notes, Tourist Talk and Dopolavoro Announcements. **8.20,** Giornale Radio and News. **8.30,** Time Signal and Announcements. **8.35** (approx.), Madame Butterfly—Opera (Puccini) on Gramophone Records. In the interval: Book Review. After the Opera: News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**6.55 p.m.,** Time Signal and Programme Announcements. **7.0,** Song Recital by Mme. Eugenie Pinterovic. **7.30,** Talk. **8.10,** An Operetta (Tijardovic) on Gramophone Records. **9.30,** News Bulletin, followed by Relay of European Stations.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**12 Noon,** Weather for Farmers. **12.5 p.m.,** The Frost Quintet (Schubert), followed by Second Weather for Farmers. **12.55,** Nauen Time Signal. **1.45,** News Bulletin. **2.0,** Gramophone Concert of Popular Music, relayed from **Berlin (Witzleben). 3.0,** Handwork for Children. **3.30,** Weather and Exchange. **3.45,** Hansjürgen Nierenz reads from his own Works. **4.0,** Songs for Young People. **4.30,** Concert from **Hamburg. 5.10,** Weekly Review. **6.0,** Poetry Reading. **6.5,** Song Recital by Inge Brodersen: Old Folk Song, Ein Lied vom Rosengarten; Vaterlandslied (Glück); Die linden Lüfte sind erwacht (Schubert); Lachen und Weinen (Schubert); Im Frühling (Schubert); Klein Marie (Reger); Wenn die Linde blüht (Reger) Du meines Herzens Krönelein (Reger); Julinacht (von Schillings); Das mitleidige Mädchen (von Schillings). **6.30,** Sports Talk: Rugby Matches. **6.50,** Weather for Farmers and Announcements. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Concert of Light Military Music, conducted by Gerd Fricke. **9.0,** Dance Music. **10.0,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Serenade, relayed from **Munich 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.0 p.m.,** Orchestral Concert, conducted by Hans Steinkopf. **5.0,** Sports Travelogue: Through England. **5.15,** Johann Strauss Concert, conducted by Hans Steinkopf: Overture, The Gipsy Baron; Waltz, Sorgenbrecher; Polka, Tritsch-Tratsch; Gallop, Klipp-Klapp; Quadrille from Der Waldmeister; Polka, Telephone; Gallop, Leichtes Blut; Waltz, Freut euch des Lebens. **6.0,** Talk: Exemplary Lives. **6.20,** Topical Programme. **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.5,** Announcement. **8.10,** Nänie for Choir and Orchestra (Brahms), relayed from the Singakademie: Conductor Prof. Georg Schumann. **8.30,** Programme from **Langenberg. 10.0,** Weather, News and Sports Notes. **10.15** (approx.), Dance Music, relayed from the Café Berlin. **12.30 a.m. (Sunday),** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BRATISLAVA

1,076 kc s, 279 metres; 14 kW.—**5.20 p.m.,** Marionnette Play. **6.20,** Medical Talk. **6.30,** Light Music on Gramophone Records. **6.40,** Talk for Women. **6.55,** News Bulletin. **7.0,** See **Prague. 8.0,** Boccaccio—Operetta (Suppé). **10.30,** See **Prague. 10.45,** See **Moravská-Ostrava. 11.30** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres, 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—1.10 p.m.,** Gramophone Concert of Popular Music. **1.45,** Time, Weather, News, and Exchange. **2.5,** Light Music on Gramophone Records. **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Film Review. **4.0,** Talk: The Battle of Gorlize. **4.30,** See **Hamburg. 5.30,** Book Review. **5.50,** Talk: Silesia as the Seat of War in the War of Liberation in 1813. **6.10,** From London to Edinburgh—Programme of Gramophone Records, with Commentary. **6.50,** Weather for Farmers, and News. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Programme to be announced. **8.30,** May is here! Programme by the Station Choir and Orchestra, conducted by Franz Marszalek; Soloists, Franz Baumann (Tenor) and Käte Geier (Contralto). **10.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **10.30,** Dance Music from **Berlin (Witzleben). 12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**6.25 p.m.,** German Transmission: Concert of Popular Music. **7.0,** See **Prague. 8.0,** See **Bratislava. 10.30,** See **Prague. 10.45,** See **Moravská-Ostrava. 11.30** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R., 590 kc s, 509 metres; 15 kW.—**12 Noon,** Concert by the Small Station Orchestra, conducted by Leemans: Overture, The Italian Girl in Algiers (Rossini); Petite Suite (Ohlsen); Serenade (Holmann); Selection from Carmen (Bizet); Violin Solo: Schön Rosmarin (Kreisler); Before an Old Musical Clock (Mueller-Melhorn); Hungarian Rhapsody No. 2 (Liszt). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert of Variety Music, conducted by André Felleman, relayed from the Grand Hotel, Antwerp. **4.45,** Talk on Trade. **5.0,** Dance Music, relayed from the St. Sauveur Palais de Danse. **6.0,** Talk on the Belgian Painter, Gustave de Smet. **6.15,** Gramophone Records: Overture, Tancred (Rossini-Duthoit); Symphony in E Flat (Mozart). **6.45,** Plaisir d'amour—Sketch (de Ghelderode). **7.0,** Gramophone Records: Overture, The Bohemian Girl (Balfe); Selection from The King of Jazz (Wayne). **7.15,** Talk: Napoleon in Belgium. **7.30,** Review of International Events. **8.0,** Cinna—Play in Five Acts (Corneille). **10.0,** Le Journal Parlé. **10.10,** Gramophone Concert: Selection from The Maid of the Mountains (Fraser Simson); Selection from The Cuckoos (Kalmar-Ruby); Melody in F (Rubinstein); Song of the Flame. **10.30,** Concert by the Max Alexys Orchestra, relayed from the Ancienne Belgique.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—**12 Noon,** Concert of Music in Honour of the Virgin Mary, on Gramophone Records. **12.30 p.m.,** Gramophone Records: Waltz, Frühlingsstimmen (Joh. Strauss); Aubade printanière (Lacombe); Walter's Prize Song from The Mastersingers (Wagner); Overture, Patrie (Bizet). **1.0,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans; Soloist, Mlle. Martha Leonard (Soprano). **5.0,** Concert by the Symphony Orchestra, conducted by J. Kumps: March of the Marionettes (Hullebroeck); Overture, Chal Romano (Ketelbey); The Clock and the Dresden Figures (Ketelbey); Spanish Suite, La Féria (Lacôme); Hungarian Rhapsody No. 14 (Liszt). **5.45,** Programme for Children. **6.30,** Concert of Russian Music by MM. Straschovitch and Staradombtneff (Balalaika) and M. Tchexomtzeff (Guitar). **7.15,** Book and Cinema Reviews. **7.30,** Agricultural and Horticultural Talk. **8.0,** Concert by the Symphony Orchestra, conducted by J. Kumps; Soloist, E. De Decker (Bass): Marche lorraine (Ganne); Overture, Les Saltimbanques (Ganne); Rhapsody in Blue (Gershwin); Song, Espana (Chabrier); Marche joyeuse (Chabrier). **8.45,** Talk. **9.0,** Concert (contd.): Spanish Capriee (Rimsky-Korsakov); Song; Overture, The Gipsy Baron (Joh. Strauss); Perpetuum mobile (Joh. Strauss); Waltz, Künstlerleben (Joh. Strauss); K.V.R.O. Strijdlied (Mendemans). **9.55,** Evening Prayer. **10.0,** Le Journal Parlé. **10.10,** Selection from The Valkyries—Opera (Wagner) on Gramophone Records. **11.0,** Light Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert by the Station Orchestra: Overture, Benvenuto Cellini (Berlioz); Dance of the Hours, from La Gioconda (Ponchielli); Selection from Tristan und Isolde (Wagner); Selection from Die Fledermaus (Joh. Strauss); Potpourri, Der Nichelungen Flammenzeichen (Urbach). **6.0,** Radio Journal. **6.15,** Concert by the Station Orchestra: Waltz, España (Waldteufel); Variations on a Theme by Haydn (Brahms); Spanish Dance, Aragonesa (Falla); Chanson for Violin (Tchaikowsky); Turkish March, from The Ruins of Athens (Beethoven). **7.0,** Educational Talks. **7.40,** Gramophone Concert of Light Music. **8.0,** Schrammel Music, by the Kreuzer Quartet. **8.30,** Talk. **8.45,** Light Music, relayed from a Restaurant. **9.45,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW.—Also relayed on **840 metres** from **6.30 p.m.** (approx.) till Close Down. **10.0 a.m.,** Radio Report of the Opening of the Budapest International Fair. **11.10,** Tides Report. **11.15 to 11.55,** Radio Report from the Budapest International Fair (contd.). **12 Noon,** Chimes. **12.5 p.m.,** Police Band Concert. **1.15 to 2.35** and **3.30 to 4.40,** Radio Reports from the Budapest International Fair. **5.0,** Talk. **5.30,** Song Recital by Michael Sarossy. **6.0,** The Letter Box. **6.30,** Talk on Africa: The Voice of the Desert—with Illustrations on Gramophone Records. **7.0,** Humorous Talk. **7.30,** Relay from the Royal Hungarian Opera House. **10.15,** News, followed by Gramophone Records of Popular Music.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc s, 1,153 metres;** 7.5 kW. —**12 Noon,** Time and Chimes from the Town Hall. **12.15 p.m.,** Talk on the Danish Sculptor, Bertel Thorvaldsen. **12.45,** Concert by the Bendix String Ensemble, relayed from the Wivex Restaurant. **2.0 to 2.30,** Interval. **2.30,** Popular Gramophone Concert. **3.0,** Programme for Children. **3.30,** Concert by the Station Orchestra, conducted by Emil Reesen: Overture, Der Opernball (Heuberger); Ballet Music from Der faule Hans (Neidhal); Swedish Folk Melodies and Dances (arr. Södermann); Scherzo in B Flat (Schubert); Slav March (Tchaikovsky); Comedy Overture (Gade); Ballet Suite (Gyldmark); Selection from Orpheus in the Underworld (Offenbach); Tarantella from Masaniello (Auber); Hungarian Comedy Overture (Keler-Bela). In an interval at **4.15** (approx.), Reading. **5.40,** Exchange and Fish Market Prices. **5.50,** Talk on Birds. **6.30,** French Lesson. **6.50,** Weather. **7.0,** News. **7.15,** Time. **7.30,** Talk on the following Relay. **8.0,** Don Giovanni—Opera in Two Acts (Mozart), relayed from the Royal Theatre. **11.0,** News. **11.15,** Dance Music by the Richard Johansen Band, relayed from the Lodberg Restaurant. In an interval at **12 Midnight,** Time Signal and Chimes from the Town Hall. **1.15 a.m. (Sunday)** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**12 Noon,** Popular Music on Gramophone Records. **12.30 p.m.,** News. **12.45,** Concert of Light Music. **5.30 to 7.0,** Programme in English by the I.B.C.: Announcers, C. Danvers-Walker and B. McNabb. **5.30,** Military Band Concert for Tunbridge Wells and Isle of Thanet Listeners: Overture, Poet and Peasant (Suppé); Father of Victory; Hungarian Rhapsody No. 2; Cornet Solo, The Rosary; Selection from Iolanthe (Sullivan); In a Persian Market (Ketelbey); The Squirrel Dance; Selection from The Pirates of Penzance (Sullivan). **6.15,** Orchestral Concert for Dover and Folkestone Listeners: Classical Selection (arr. Ewing); Aria from Madame Butterfly (Puccini); Autumn Leaves (Vöglein); Old Spanish Song (Alberti); Violin Solos: (a) Au mois d'avril (Adlington), (b) Fandango (Godowsky); Träume (Wagner); Waltz Song from La Bohème (Puccini); Violin Solo, La chasse (Carter); Shepherd's Hey (Grainger); Frühlingsstimmen (Joh. Strauss). **7.0,** Radio Gazette. **7.20,** Local News. **7.30,** The Listeners' Hour and News. **8.30,** Concert of Variety Music. **10.0,** Café Concert. **11.0 p.m.** till Close Down, Programme in English by the I.B.C.: **11.0 p.m.,** Club Concert for Hull Listeners: Father of Victory; A Soldier's Song; Le Rêve passe; Wiener Praterleben; Rollin' down the River; Souvenirs of Switzerland; A Bit, a Saddle, a Horse; By the Blue Hawaiian Waters; The Empire Parade; Around the Corner; Drink, drink, Brothers drink; Let me sing and I'm happy; Varsity March. **12.0 Midnight,** Concert of Light Music by the I.B.C. (Ireland). Ltd.; Orchestra: The Butterfly; Songs: (a) The Lass from County Mayo, (b) O Mistress Mine; Orchestra: Selection from Lilac Time; Songs: (a) My Irish Paradise, (b) Take away the Moon; Orchestra: The Grasshopper's Dance. **12.30 a.m. (Sunday),** Vocal Duets: Living a Life of Dreams (Ruby); The Waltz you saved for me (Wayne); The Wedding of the Three Blind Mice (Wark); Orchestra: Miracle Melodies; Pasadena Rose (Kennedy); When your Lover has gone (Swan); It's an Old Spanish Custom (Leslie). **1.0,** Banjo Solos and Vocal Trio Music; Banjo Solo, Darktown Dandies; Vocal Trio: Liza Lee; Banjo Solos: (a) The Buffoon, (b) Snatches of Song. (c) Rugby Parade; Vocal Trio: My Baby just cares for me; Sleepyhead (Haekforth); Tattoo March. **1.30,** Song Recital: Handsome Gigolo; Dance away the Night; Do my Mammy; Orchestra: Selection from The King of Jazz; When your Lover has gone; Dancing with Tears in my Eyes; Little Sweetheart of the Prairie. **2.0,** Dance Music by the Ibsolians; The King's Navee; How are you? Toasts: Let's all dance the Polka; Leave a little for me; I can't write the Words; How do you do, Mr. Brown; You'll always be the same Sweetheart; Isn't it romantic?; Balloons; Liszt, Chopin and Mendelssohn; Ain't cha coming out to-night?; When they're on the Lord Mayor's Parade; Big Ben's saying Goodnight. **2.55,** I.B.C. Goodnight Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

MAY 6th **SATURDAY** *continued*

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—4.30 to 5.50 p.m.,** See **Stuttgart.** **5.50,** Economic Notes. **6.0,** Talk: The Influence of Man on the South West German Countryside. **6.25,** Talk on the New German Economic Policy. **6.50,** Time, Programme Announcements. Weather, and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Langenberg.** **8.0,** King, Knight and Citizen—Radio Sequence from the Deutschordenshaus. **8.45,** Glückliche Reise (A Pleasant Journey)—Operetta in Three Acts (Künneke). **10.30,** Time, News, Weather, and Sports Notes. **11.0,** Serenade from **Munich.** **12 Midnight** (approx.). Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), 806 kc/s, 372 metres; 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.—4.30 p.m.,** Concert by the Hamburg Philharmonic Orchestra, conducted by Adolf Secker: Selection from Salomé (R. Strauss); Overture, Figaro (Mozart); Italian Caprice (Tchaikovsky); The Gingerbread Waltz from Hansel and Gretel (Humperdinck); Trio from Der Rosenkavalier (R. Strauss); Polovtsian Dances from Prince Igor (Borodin). **5.30,** Talk: The Power of the Press. **5.55** (from **Hanover**), Concert by a Mandoline Orchestra, conducted by Louis Becker; Soloists: Isa Marsen (Songs), H. Stöhr (Double Bass), and G. F. Konrich (Recitations); Potpourri of German Folk Melodies and Dance Music, Unter der Dorflinde (Ritter); Two Songs (Schütz): (a) Auf der Gartenbank, (b) Auf Wiedersehen; Double Bass Solos (Madensky): (a) Reverie, (b) Reminiscences; Einzug der Frülingsblumen (Kockert); Recitation in Calenberg Dialect; Two Songs: (a) Erwartung (Graener), (b) Die Rose (Graener); Nibelungen-Marsch (Sonntag). **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Langenberg.** **8.0,** See **Berlin (Witzleben).** **10.0,** Time and News. **10.20** (from **Hanover**). Talk: Measures against Aerial Attack in Hanover. **10.30,** Concert from **Berlin (Witzleben).**

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.—11.30 a.m.** (from **Danzig**), Police Band Concert, conducted by E. Stieberitz: Prelude to the Fifth Act of King Manfred (Reinecke); Song and Serenade (Leoncavallo); Suite of National Songs (Tchaikovsky); Fantasia on Horch, die alten Eichen rauschen (Stieberitz); The Little Soldiers (Marks); Waltz Potpourri No. 1 (Robrecht); The Student passes by (Ibanez); Potpourri, Wiener Spaziergänge (Komzak); March, Old Comrades (Teike). **1.5 p.m.,** Gramophone Concert: Horst-Wessel-Lied; Fascist March, Hitler-Leute; Selection from Madame Butterfly (Puccini); Aria from Il Trovatore (Verdi); Aria from I Pagliacci (Leoncavallo); Waltz from Gipsy Love (Lehár); Lagunen-Walzer (Strauss); O Santa Justitia from Czar and Carpenter (Lortzing); Suite orientale (Popy); Polka Potpourri (Lindemann); Mon rêve (Waldteufel); Golden Rain (Waldteufel); Potpourri of Hunting Songs. In the interval at **1.20,** News. **2.30,** Programme arranged by the Post Office, with Gramophone Records. **3.0,** Agricultural Prices and Exchange Rates. **3.30** (from **Danzig**), Handwork for Children. **4.0,** Concert relayed from **Berlin (Witzleben).** In the interval at **5.0,** Book Review. **5.30,** Talk: The Reduction in Tourist Traffic. **6.0,** Programme Announcements. **6.15,** Agricultural Prices. **6.25,** Talk: The Young Hitlerites—their Work and Aims. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Langenberg.** **8.0,** News. **8.10,** Part Relay of the Brahms Festival Concert from the Stadthalle, Königsberg. The Königsberg Opera House Orchestra conducted by Max Fiedler. Soloists: Prof. Georg Kulenkampff (Violin) and Prof. Paul Grümmer (Cello). Academic Festival Overture; (Double Concerto for Violin and Cello). **9.0,** Variety Programme relayed from **Langenberg.** **10.0,** Weather, News and Sports Report. **10.10** (approx.), Dance Music relayed from **Berlin (Witzleben).** **12.30 a.m. (Sunday),** Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—**12.40 p.m.** till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). **12.40,** Concert by the V.A.R.A. Mandoline Ensemble. **1.10,** Organ Recital by J. Jong. **1.25,** Concert by De Notenkrakers, conducted by D. Wins: Melody (Metallo); Die letzte Tropfen (Kratze); The Marriage of the Marionettes (Rathke); Spanish Suite (Barbot); Moonlight on the Alster (Fetras). **1.55,** Organ Recital by J. Jong. **2.10,** Concert by De Notenkrakers (contd.): Song of the Violin (Schebek); Sefira (Siede); Love's Dream after the Ball (Czibulka); Musical Whimsies (Ketelbey); The Cockchafers' Tea Party (Noack); Prima Prima (Holzmann). **2.40,** Interval. **2.55,** Light Music on Gramophone Records. **3.30,** Talk. **3.50,** Song and Pianoforte Recital. **4.40,** Sports Talk. **5.0,** 'Cello Recital by J. Blaser, with C. Steyn at the Pianoforte. **5.15,** Light Music on Gramophone Records. **5.20,** 'Cello Recital (contd.). **5.30,** Concert by De Fliererfluiters, conducted by J. v. d. Horst: Soloist: L. Fuld (Songs); Solidaritätslied (Eysler); Songs: (a) Atlantide (Benoit), (b) Eastern Love (Leopold); Overture, The Merry Wives of Windsor (Nicolai); Songs: (a) Halli-Hallo (Marbot), (b) How deep is the Ocean (Berlin), (c) Hallo, Baby (Rafaeli); Gruss mir die Reeperbahn (Gilbert); Gramophone Records: Komm Cigány (Kálmán); Indian Love Call (Friml); Potpourri, Tanz mit mir einer Walzer (Weber); Lied der Bergarbeiter (Eysler). **6.20,** Literary Talk. **6.40,** Concert. **7.25,** Talk. **7.40,** Programme arranged by the V.R.O. **8.40,** Concert by the V.A.R.A. Orchestra, conducted by H. de Groot: March (de Groot); Overture, Masaniello (Auber); Selections from William Tell (Rossini). **9.10,** Song Recital by Mlle. Elly Krasser: Frühling im Wienerwald (Ascher); Wie schon bist du Wien (Franszowsky); Ich muss wieder in einmal in Grinzing sein (Stolz). **9.25,** Concert (contd.): Romantic Suite (Armandola); So schön wie es damals war (Dauber). **9.55,** News Bulletin. **10.10,** Song Recital (contd.): Naples (Stolz); In Spain (Mary); Mann nennt mich nur la bella Tangolita (Abraham). **10.20,** Organ Recital by J. Jong: Melody (Rubinstein); From Heidelberg to Barcelona (Borchert); Eenheid (Altink). **10.40,** Song and Pianoforte Recital by Mlle. E. Philipse and J. Vogel. **10.50,** Concert (contd.): Fremersberg (Koenemann). **11.10,** Song and Pianoforte Recital (contd.). **11.20,** Concert (contd.): Selection from White Horse Inn (Stolz Benatzky); The Internationale (de Geyter). **11.40,** Popular Music on Gramophone Records. **12.40 a.m. (Sunday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc s, 1,875 metres; 8.5 kW.—Programme of the Catholic Radio Society (K.R.O.). **8.40 a.m.,** Popular Music on Gramophone Records. **9.55 to 10.40,** Interval. **10.40,** Light Music on Gramophone Records. **12.10 p.m.,** Religious Address. **12.40,** Police Announcements. **12.55,** Trio Concert: Uns kann keiner (Heymann): Du und Du (Joh. Strauss); Salut d'amour (Elgar); Selection from No, No, Nanette (Youmans); Ständchen (Heykens); Suite orientale (Popy); Gramophone Records: In der Heinzelmännchens Bar (Rosen); For You, my Baby (Spoliansky); Selection from Les Cloches de Corneville (Planquette); Wie hab' ich nur leben können ohne dich (Holländer); Finale. **2.25,** Interval. **2.40,** Talk for Young People. **3.10,** Programme for Children. **4.40,** H.I.R.O. Programme. **5.40,** Orchestral Concert: Berliner Luft (Lincke); Am Neckarstrand (Millöcker). **5.55,** Lesson in Esperanto. **6.10,** Concert (contd.): La boutique fantasque (Rossini-Respighi); Ave Maria (Gounod); Waltz, Oudes de joie (Waldteufel); Spanish Dances Nos. 1 and 2 (Falla); Selection from Casanova (Strauss); March Potpourri (Zimmer). **7.0,** Press Review. **7.20,** Concert (contd.): Marionettenbrautzug (Rathke); Eine Schachtel Soldaten (Siede); Toréador et Andalouse (Rubinstein); Prelude (Rachmaninov); Spanish Serenade, Lelita (Buzzi-Peccia); Scenes from the African Bush (Percy); Nibelungenmarsch (Sonntag). **7.50,** Talk on Philosophy. **8.10,** Police Announcements. **8.25,** Sports Talk. **8.40,** Variety Concert. In the interval at **9.10,** News. **11.55,** Popular Music on Gramophone Records. **12.40 a.m. (Sunday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Theatre Guide. News, Exchange and Racing Results. **8.10,** Film Review. **8.20,** Tourist Report. **8.35,** Concert of Light Music. **9.0,** Weather and News. **9.15,** Concert of Popular Music. **12 Midnight** till Close Down, Programme in English by the I.B.C. Announcer: H. K. Hitchcock. **12 Midnight,** Variety Music. Riding on a Camel (Wright); Bunkey-doodle-l-do (Sarony); Scotch Strathspeys; Snuggled on your Shoulder (Lombardo); When we're alone (Jason); Overture, Raymond (Thomas); Quartet: You're gonna be young (Nicholls); Scotch Reels; Concentratin' (Waller); Georgia on my Mind (Carmichael); The Skaters' Waltz (Waldteufel); Quartet: The King's Horses (Graham); Whistling Waltz; Trio: (a) Reaching for Someone (Donaldson), (b) Ain't misbehavin' (Brooks); Mona Lisa (Sullivan). **12.57 a.m. (Sunday),** I.B.C. Good-night Melody. **1.0,** Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**7.0 p.m.,** Announcements and Gramophone Records of Light Music. **7.15,** Talk. **7.30 to 11.35,** See **Warsaw.** **11.35,** Dance Music.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by **Helsinki, 815 kc/s, 368.1 metres.—6.15 p.m.,** Sports Talk. **6.40,** Tchaikovsky Concert by the Station Orchestra, conducted by Erkki Linko. Overture, Hamlet; Flower Waltz; Allegro con grazia, from Symphony No. 6; Hopak. **7.10,** Recitations. **7.30,** Vocal Quartet Concert. **7.50,** Programme of Humoresques. **8.0,** Concert by the Station Orchestra. Waltz, The Blue Danube (Joh. Strauss); Dorfschwalben aus Osterreich (Jos. Strauss); Waltz, The Skaters (Waldteufel); Invitation to the Waltz (Weber). **9.15,** Dance Music, relayed from the Restaurant Kamp. **11.0** (approx.), Close Down.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0 p.m.,** Concert conducted by Wolf. Soloist: Milly Fikentscher-Willach (Soprano). March, Dem Lenz entgegen (Blankenburg); Waltz, Fideles Wien (Komzak); Overture, The Daughter of the Regiment (Donizetti). Songs (Wolf): (a) Im Frühling, (b) Auf einer Wanerung, (c) Elfenlied. Suite, Ein Sommerfast (Siede); Salute d'amour (Elgar); Ständchen (Heykens); Strauss Potpourri, Drei Sträusse (Lindemann). Song, Murmelndes Lüftchen (Jensen); Blumengeflüster (Blon). Selection from Eine Frau von Format (Krausz). In an interval at **2.0** (approx.), Announcements. **3.0,** Programme for Children. **3.30,** Economic Notes and Time. **3.50,** Talk: A Boat Trip on the Moselle. **4.10,** English Reading. **4.30,** Choral Concert, relayed from **Minden.** Paraphrase on the Song Es waren zwei Königskinder (Henze); Waltz, Donausagen (Fucik); Folk Song Potpourri, Volkslieblinge (Ritter); March, Eitel-Friedrich (Blankenburg). **5.45,** Talk for Women. **6.5,** Talk: Fishermen on the Rhine. **6.25,** Reading. **6.50,** Weather, Time Economic Notes and Sports Results. **7.0,** Transmission for all German Stations: Concert by the Station Orchestra, conducted by Buschkötter, relayed from **Cologne.** Leonora Overture No. 2 (Beethoven); Symphonic Poem, Also sprach Zarathustra (R. Strauss). **8.0,** Announcements. **8.5,** May is Here!—Variety Programme. **10.10,** Announcements. Educational Notes and Sports Notes. **10.45,** See **Munich.** **12 Midnight** (approx.). Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—12.5 p.m.,** Classical Music on Gramophone Records. **1.0** News, Weather, and Time. **1.15,** Choral Concert on Gramophone Records: Benedictus and Agnus Dei (di Lasso); Crucifixus (Lotti); In einem kühlen Grunde (Silcher); Das ist der Tag des Herrn (Kreutzer); Songs (Haydn): (a) Aria from The Creation, (b) Aria from The Seasons; Morgen im Walde (Hegar); Wanderschaft (Zöllner); Songs (Brahms): (a) In stiller Nacht, (b) Die Blümlein sie schlafen; Sturmbeschwörung (Dürrner); Vaterlandslied (Marschner); Abendfeier (Heim); Spinn, spinn (Jüngst). After the Concert, Exchange Quotations. **2.0,** Wireless Notes. **2.30,** Programme for Children. **3.15,** Chess Lesson. **3.45,** Economic Notes. **4.0 to 4.15,** Music Notes. **4.30,** Concert, relayed from **Berlin (Witzleben).** **6.0,** German for Germans. **6.20,** A Modern Dictionary. **6.30,** Talk: Technical Experts in the Government. **7.0,** Transmission for all German Stations, relayed from **Langenberg.** **8.0,** Topical Talk. **8.10,** Mandoline Concert, relayed from **Apolda:** Festival Hymn (Spiegelberg); Eine Nacht in Venedig (Henze); Fantasia, Spinn, spinn (Wormsbacher); Festival March, No. 2 (Schuppe). **8.40,** Reading: Der Herr der Wälder (H. L. Raymann). **9.0,** News. **9.10,** Concert of Classical Operetta Music by the Leipzig Symphony Orchestra, conducted by Hilmar Weber. Soloist, Eva Anschütz (Soprano); Overture, Eine Nacht in Venedig (Joh. Strauss); Dort in den Bergen, from Der Obersteiger (Zeller); Selection from Die schöne Galathee (Suppé); Spiel ich die Unschuld vom Lande, from Die Fledermaus (Joh. Strauss); Overture, Der Opernball (Heuberger); Waltz Song from Der Fremdenführer (Ziehrer); Selection from Der Feldprediger (Millöcker). **10.30,** News. **10.40** (approx.), Concert Relay. **12 Midnight,** Close Down.

LINZ.—See **Vienna.**

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Radio Journal, Medical Talk and Request Gramophone Records. **9.15,** News Bulletin. **9.30 to 10.0,** Linguaphone English Lesson. **10.30,** Chimes and Time Signal. **10.35** (approx.), Dona Francisquita—Musical Comedy in Three Acts (Vives) on Gramophone Records. **12.45 a.m. (Sunday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by Plichta. Overture, Le Roi l'a dit (Delibes); Ballet Music from Ascanio (Saint-Saëns); Fantasia on Czech Operas (Bernhard); Spanish Caprocoio (Malvezzi); Valse des Amourettes (Provaznik); Pompadour (Labcky). **5.10,** See **Prague.** **5.50,** Talk on Music. **6.0,** Talk: Humour in Czech Literature. **6.15,** See **Prague.** **6.25,** Chromatic Accordian Recital. **6.45,** Light Music on Gramophone Records. **7.0,** See **Prague.** **8.0,** See **Bratislava.** **10.30,** See **Prague.** **10.45,** Light Music by the Station Orchestra. **11.30** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaislautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.—5.5 p.m.,** Orchestral Concert, conducted by Erich Kloss: Prelude to La Traviata (Verdi); Serenade (Weingartner); Fantasia on Themes by Beethoven (Kusche); Dance Airs (Kienzl); Potpourri, Heimatklänge (Krome); Melody (Lacombe); Indigo March (Joh. Strauss). **6.10,** Programme for Young People. **7.0,** Transmission for all German Stations, relayed from **Langenberg.** **8.5,** Variety Programme. The Small Station Orchestra, the Schwarzfischer Orchestra, and Soloists. After the Programme, Concert by the Schwarzfischer Orchestra. **10.20,** Time, Weather, News, and Sports Notes. **10.45,** Serenade, conducted by Erich Kloss. **12 Midnight** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.—5.15 p.m.,** Programme for Children. **6.15,** Norwegian Music on the Hardanger Fiddle, with Introductory Talk. **6.45,** Talk on Economics. **7.0,** Announcements, Weather, and News. **7.30,** Variety Songs by Lalla Carlson and Tore Foss. **8.0,** Time. **8.1,** Talk. **8.30,** Concert by the Station Orchestra, conducted by H. Kramm. **9.40,** Weather and News. **10.0,** Topical Talk. **10.15,** Cocktail—Concert by the Radio Quartet and the M. W. Schubert Ensemble.—**11.0** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Report and Giornale Radio. **8.20,** Sports Notes. **8.25,** Light Music on Gramophone Records. In the interval at **8.30,** Time and Announcements. **8.45,** I granatieri (The Grenadiers)—Operetta in Three Acts (Valente). In the intervals, Review of New Books and Miscellaneous Notes. After the Operetta, News.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**6.45 p.m.,** Music Review. **7.0,** Le Journal Parlé. **8.20,** Weather Report. **8.30,** Pianoforte Recital of Italian Music by Marie Antoniette Pradier, with Commentary by André Delacour: Toccata on the Cuckoo's Song (Fasquini); Pastorale, Caprice, Allegro and Toccata (Scarlatti); Arietta (Pergolesi); Allegro (Pascetti); Sonatas (Cimarosa). **9.0,** Concert by the Firmin Touche Quartet. **10.0** (approx.), Close Down.

PARIS

POST PARISIEN; 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Light Music on Gramophone Records. **7.30,** Answers to Correspondents. **7.35,** Gramophone Records (contd.). **8.0,** Review of the Week. **8.15,** Interval. **8.30,** Violin Recital: Sonata No. 8 in E (Corelli); Romance (Wagner);

Variations on a Theme by Corelli (Tartini-Kreisler); Aria (Bach); Tambourin Chinois (Kreisler). **9.0,** Interval. **9.10,** Dance Music by the Sonora Orchestra, conducted by Fred Hoffman. **11.0,** News. **11.5,** Dance Music on Gramophone Records. **12 Midnight** (approx.), Close Down.

PARIS

RADIO PARIS, Call CFR, 174 kc s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Concert by the Radio Paris Orchestra: La chanpenoise (Daleroze); Moorish Song (Turina); Neapolitan Serenade (Francesch); Sur la Route (Roze); Padilla Potpourri. **1.0,** Exchange. **1.5,** Concert by Emile Vacher and his Orchestra. **1.30,** Exchange. **1.35,** Concert (contd.): Scènes foraines (Mignan); Persian Suite (Rubinstein); Wiener kinder (Ziehrer); Rakoczy March (arr. Michiels). **2.0,** Exchange. **3.0,** Programme for Children. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Report. **6.30,** Dance Music by the Radio Paris Orchestra. **7.0,** Scientific Talk. **7.20,** Concert by the Radio Paris Orchestra. **7.45,** Commercial Prices, News and Review of the Latin Press. **8.0,** Montmartre—Variety Programme arranged by Francis Carco. **8.30,** News, Weather and Sports Notes. **8.40,** Review by Rieux. **8.45,** Song Evening arranged by Georges Chepfer. In the interval at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**7.30 p.m.,** Radio Débuts. **8.0,** Radio Troubadours, from **New York.** **8.30,** Wealth of Harmony, from **New York.** **9.0,** Teaberry Baseball Scores. **9.5,** Dance Masters, from **New York.** **9.30,** Concert Favourites, from **New York.** **9.55,** Teaberry Baseball Scores. **10.0,** The United States Government in Pittsburgh—The U.S. Bureau of Investigation by G. A. Stevens. **10.15,** Hotel Sherman Orchestra, from **New York.** **10.30,** Behind the Law—Tales of the Pennsylvania State Police. **10.45,** Little Orphan Annie, from **New York.** **11.0,** Hotel Lexington Orchestra, from **New York.** **11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** A Recreo by Bill and Alex of the Downtown Y.M.C.A. **11.45,** Jack Pettis and his Orchestra. **11.59,** Time Signal. **12 Midnight,** Homey and Old-Fashioned Quartet. **12.15 a.m. (Sunday),** The Townsend Murder Mystery, from **New York.** **12.30,** Atkinson String Ensemble. **12.45,** Programme to be announced. **1.0 to 3.30, New York** Relay. **1.0,** American Taxpayers' League. **1.15,** The Boston Symphony Orchestra. **3.0,** Gilbert and Sullivan Gems.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc s, 488.6 metres; 120 kW.—**4.10 p.m.,** See **Moravská-Ostrava.** **5.10,** Talk on Economics. **5.20,** German Lesson for Czechs. **5.50,** Light Music on Gramophone Records. **6.5,** Agricultural Talk. **6.15,** Programme for Workers. **6.25,** News in German. **6.30,** German Transmission: Talk on Brahms. **7.0,** Chimes and News. **7.10,** Talk: Marriage Customs in the Arabian Desert. **7.25,** Viola Recital by L. Cerny: Suite for Viola and Pianoforte (Bloch); Sonata for Viola (Borkovec). **8.0,** see **Bratislava.** **10.30,** News and Sports Notes. **10.45,** See **Moravská-Ostrava.** **11.30** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc s, 403 metres; 25 kW.; **Lausanne, 442 kc/s, 680 metres;** and **Geneva, 395 kc/s, 760 metres.**—**7.0 p.m.** (from **Lausanne**). Weather and News. **7.30** (from **Lausanne**). Talk on Films. **8.0** (from **Lausanne**), Concert of Light Music by the Pesenti Orchestra. **8.35** (from **Geneva**), Concert by the Eaux-Vives Choral Society, relayed from the Reformation Hall. Soloists: M. Santandrea (Clarinet) and Henri Honegger ('Cello). **10.0,** News and Weather. **10.10** (from **Geneva**), Talk: The Work of the League of Nations. **10.30** (from **Geneva**), Dance Music by the Broadcasting Serenaders, conducted by J. Pasche. **11.30** (approx.), Close Down.

RJUKAN.—See **Oslo**

ROME

Call 1RO, 680 kc s, 441 metres; 50 kW. Relayed by **Naples, 941 kc s, 319 metres,** and **2RO, 11,810 kc s, 25.4 metres.**—**1.0 to 2.15 p.m.,** Orchestral Concert. Portabandiera (Migone); Nostalgia (Culotta); Babilonia (Elie); Song (Eisele); Don't Speak of Love (Abel); Selection from The Girl of the Golden West (Puccini); Feste di rondini (Pulighèddu); La mia serenata (Stallelli); Melody (Eimberger); Se diventassi un gran signore (Mascheroni). **4.45,** Report of the Royal Geographical Society and Giornale Radio. **5.5,** Exchange and Announcements. **5.15,** Reading. **5.30 to 6.15,** Orchestral Concert. Melody (Lehar); Ninna nanna (Michèli); City (Ramponi); Il carillon magico (Pick-Maniagalli); Toccata (Frazzi); Waldesrauschen (Liszt); Jardins sous la pluie (Debussy); The First Time (Escobar). **7.0 (Naples),** Shipping and Sports Notes. **7.10,** Lesson in Morse. **7.20,** Giornale Radio and Agricultural Report. **8.0,** Time, Announcements and Gramophone Records of Light Music. **8.15,** Song Recital by Elena Cheli (Soprano). **8.30,** Sports Notes and Tourist Report. **8.45,** Si—Operetta in Three Acts (Mascagni). In the intervals: Review of New Books and Announcements. News after the Programme.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379 metres; 50 kW. Relayed at intervals by **W2 XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**12.45 a.m. (Sunday),** Stock Reports. **1.0 to 3.0, New York** Relay. **1.0,** Kaltenmeyer's Kindergarten. **1.30,** Economic World Today. **2.0,** Band of Famous Brands. **2.15,** Zora Layman and her Debonairs. **2.30,** Neighbours. **3.0,** B. A. Rolfe and his Orchestra, from **New York,** followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc s, 459 metres, 60 kW.; **Basle, 1,229 kc s, 244.1 metres;** and **Berne, 1,220 kc s, 245.9 metres.**—**12.28 p.m.,** Time, Weather, and News. **12.40** (from **Berne**). Variety Music on Gramophone Records. **1.35** (from **Berne**), Weather and Exchange Quotations. **1.45** (from **Berne**), The Listeners' Quarter of an Hour. **2.0** (from **Berne**), Book Review. **2.30** (from **Berne**), Programme to be Announced. **3.0** (from **Berne**), Talk on Birds, with Gramophone Illustrations. **4.0** (from **Berne**), Accordion Band Concert. **4.30 to 5.0** (from **Berne**), Medical Talk: Infection. **6.30** (from **Basle**), Programme for Children. **7.0,** Chimes from Zürich Churches. **7.10** (from **Basle**), Time, Weather, and Market Prices. **7.15** (from **Basle**), Talk on the Far East. **7.45** (from **Basle**), May Magic—Variety Programme. **9.30,** Weather and News. **9.40** (from **Basle**), Dance Music on Gramophone Records. **11.0** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

Call SASA, 689 kc s, 436 metres; 55 kW. Relayed by **Boden, 244 kc s, 1,229.5 metres; Göteborg, 932 kc s, 322 metres; Hörby, 1,166 kc s, 257 metres; Motala, 221.5 kc s, 1,354.4 metres; Ostersund, 389 kc s, 770 metres,** and **Sundsvall, 554 kc s, 542 metres.**—**4.0 p.m.,** Technical Talk. **4.20,** Concert of Light Music by the Enders Orchestra, relayed from the Bern Hall. **5.20** (from **Göteborg**), Programme for Children. **5.45,** Song Recital by Wilhelm Hammstedt. **6.0,** Popular Music on Gramophone Records. **7.0,** The Practical Corner. **7.15,** Weather and News. **7.30,** Old Dance Music, relayed from **Umea, 1,301 kc s (231 metres).** **8.15,** Talk. **8.45,** Variety Programme. **9.45,** Weather and News. **10.0,** Dance Music. **11.0** (approx.), Close Down.

STRASBOURG

869 kc s, 345 metres; 11.5 kW.—**11.30 a.m.,** Variety Music on Gramophone Records. **12.45 p.m.,** News Bulletin. **1.0,** Time and Exchange. **1.5,** Variety Music on Gramophone Records. **3.0 to 3.45,** Interval. **3.45,** Music Talk in French: Liszt. **4.0,** Concert, conducted by Maurice de Villers. Part I: Mozart Programme: Overture, Il Seraglio; Symphonie Concertante for Violin, Viola, and Orchestra; Serenade for Strings. Part II: Saint-Saëns Programme: Ballet Music from Henry VIII; Selection from Les Barbares; Symphonic Poem, La jeunesse d'Hercule; Prelude and Cortège from Déjanire. **6.0,** Legal Talk in German. **6.15,** French Lesson. **6.30,** Gramophone Concert: Scherzo from A Midsummer Night's Dream (Mendelssohn); Four Arias from Cavalleria rusticana (Mascagni); Spanish Rhapsody (Ravel). **7.15,** Agricultural Talk. **7.30,** Time Signal. **7.31,** News Bulletin. **7.45,** Light Music on Gramophone Records. **8.15,** Press Review in German. **8.30,** Talk on Werther—Massenet, with Extracts from the Opera in Literary Form. **10.0,** Press Review in French. **10.15** (approx.), Dance Music by the Station Orchestra: One Step. You're the one; Foxtrot, Madeline; That Baby is struck on me; Boston; Foxtrot, Never swat a Fly; Slow Foxtrot, How deep is the Ocean? Foxtrot, You're telling me; Waltz Potpourri; Foxtrot, Roses at Dawning; Slow Foxtrot, Wherever you are; Sag mir nicht nein, sag' mir Vielleicht (Michaelov); Foxtrot, Melody (Moretti); One Step, Marching along together. **11.0,** Dance Music from the Savoy. **12 Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER, 360.5 metres, 60 kW.; and **Freiburg, 570 metres.** **12.20 p.m.,** Recital of Old Dances for 'Cello and Pianoforte, by E. Ehrhardt-Erdmann and Hermann Klaiss: Three Polonaises (Kirnberger); Sarabande (Bach); Minuet (Haydn); Courante (Eccles); Siciliano (Defesch); Bourrée (Handel); Gavotte (Rameau); Minuet (Becker). **12.50,** Song Recital on Gramophone Records by Heinrich Schlusnus: Songs (Beethoven): (a) In questa tomba oscura, (b) Ich liebe dich; Songs (Schubert): (a) Dem Unendlichen, (b) Du bist die Ruh; Songs (Liszt): (a) Es muss ein Wunderbares sein, (b) Im Rhein, im schönen Strome; Songs (Brahms): (a) Minnelied, (b) Ständchen; An der Weser (Pressel). In an interval, Entr'acte and Ballet Music from Rosamund (Schubert). **1.30,** Concert from **Langenberg. 2.30,** Time Signal, News, Weather, and Programme Announcements. **2.45,** Talk on Flowers. **3.10,** Recital of Old German Folk Songs (1634-1781) by Hermann Conzelmann (Baritone), with Aartur Haagen at the Pianoforte. **3.30,** Programme from **Frankfurt. 4.30,** Concert by a Zither Quartet: March, Glück auf (Mühlhölz); Mazurka, Mirzl, tanz mit mir (Obermaier); Waltz, Lustige Tegernseer Schuhplatt'l (Hanser); Serenade Pathetique (Wormsbacher); Rondino in C (Obermaier). **5.0** (from **Freiburg**), Orchestral Concert, conducted by Heinrich Pfaff: Beethoven-Overture (Lassen); Fantasia on the Works of Haydn (Urbach); Overture, Nachklänge aus Ossian (Gade); Scandinavian Suite (Kjerulf); Selection from The Miracle (Humperdinck); Deutschmeister - Regimentsmarsch. **5.50,** Time Signal and Sports Notes. **6.0,** Talk: Personality and the Outside World. **6.25** (from **Karlsruhe**), Talk: The aims of the Young Hitlerites. **6.50,** Time Signal and News. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0 to 10.30,** Programme from **Frankfurt. 10.30,** Time Signal, News, Weather Report, and Programme Announcements. **11.0,** Concert from **Munich. 12 Midnight,** Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**6.30 p.m.,** 'Cello Recital. **6.45,** Prelude, and Death of Isolde from Tristan and Isolde (Wagner), by the Symphony Orchestra. **7.0,** Accordion Solos. **7.15,** Horse Racing Results, Market Prices and News. **7.25,** Local News. **7.30,** Music by a Viennese Orchestra. **8.0,** Concert of Opera Music. Selection from (a) Mirella (Gounod), (b) Le Chemineau (Leroux), (c) Manon Lescaut (Puccini), (d) Les Vingt-huit Jours de Clairette (Roger), (e) Die Fledermaus (Joh. Strauss), (f) Comtess Maritza (Kálmán). **8.30,** Sound Film Music. **8.45,** Hunting Horn Solos. **9.0,** Extracts from Manon Opera (Massenet). **10.0,** Orchestral Music. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. Selection from (a) Hans the Flute Player (Ganne) and (b) Die Bayadere (Kálmán); Des Femmes, des Roses (Grothe); Aria from Sigurd (Reyer); La Czarine (Ganne). **11.0,** Popular Music. **11.30 to 12 Midnight,** Programme in English by the I.B.C. W. Brown-Constable announcing. **11.30,** Pianoforte Entertainer; Selection from The King of Jazz (Whiteman); She was only Somebody's Daughter; I certainly don't need you (Hilliam); Fantasia on Popular Melodies (Ray); Memories of Maurice Chevalier; Selection from Puttin' on the Ritz. **11.57,** I.B.C. Good-night Melody. **12 Midnight,** News Bulletin. **12.5 a.m. (Sunday).** Chansonnettes. **12.15,** Dance Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc s, 247.7 metres; 10 kW.—**5.10 p.m.,** till Close Down: See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc s, 331.5 metres; Genoa, 959 kc s, 312.8 metres;** and **Florence, 599 kc s, 500.8 metres.**—**5.10 to 6.0 p.m.,** Gramophone Concert of Popular Music. **6.35,** Giornale Radio, Announcements, Agricultural and Dopolavoro Notes. **7.0,** Time, Tourist Report, and Gramophone Records of Light Music. **7.20,** Giornale Radio. **7.45,** Gramophone Records (contd.). **8.30,** Talk: Events and Problems. **8.45,** Victoria and her Hussar—Operetta in Three Acts (Abraham). In the intervals: Review of New Books, Announcements, and Giornale Radio. After the Programme, Dance Music Relay.

VATICAN CITY

15,120 kc s, 19.84 metres (Morning); and **5,969 kc s, 50.26 metres (Evening);** 10 kW.—**11.0 to 11.15 a.m.,** Religious Announcements in Different Languages. **8.0 to 8.15 p.m.,** Religious Information in Italian.

VIENNA

581 kc s, 517 metres; 15 kW. Relayed by **Graz, 852 kc s, 352.1 metres; Innsbruck, 1,058 kc s, 283 metres; Klagenfurt, 662 kc s, 453.2 metres; Linz, 1,220 kc s, 245.9 metres;** and **Salzburg, 1,373 kc s, 218.5 metres.**—**5.50 p.m.,** Orchestral Concert, conducted by Wilhelm Wacek: Cortège (Carl Fruhling); Overture, The Pied Piper of Hamelin (Hellmesberger); Spring Serenade (Lacombe); Waltz from the Ballet, Wiener Legende (Mader); Selection from Der Teufelsreiter (Kálmán); Waltz, An der Rhine (Joh. Strauss); March, Tiroler Adler (Alpenleitner). **6.45,** Talk: Through the Wild Valleys of the Caucasus. **7.10,** Song Recital by Rudolf Watzke. Songs by Schubert): (a) Der Wanderer, (b) Nacht und Träume, (c) Wohin; Three Songs by Brahms: (a) Weile an dieser Quelle, (b) Am Amaryllis, Schlummere nicht weiter, (c) Bin ich da, so will ich Leben; Lieder von Anmut (Vollerthun): (a) Zweifel, (b) Der Esel, (c) Heimliches Ständchen. **7.40,** Maxims. **7.50,** Time Signal, Weather Report, Sports Notes and Programme Announcements. **8.0,** Der Unsterbliche Lump—Operetta in Three Acts (Eysler), with the Choir and Orchestra of the Vienna Volksoper. In an interval at **9.30** (approx.), News and Weather Report. **10.15,** Dance Music by the Blue Boys, with Song Refrains by Egon Gross, relayed from the Grabeu-Café.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Light Music on Gramophone Records. **1.10,** Weather Forecast. **1.15,** Programme for Schools, relayed from **Lwow. 1.55 to 3.10,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Answers to Military Correspondence. **3.35,** Programme for Children, relayed from **Lwow. 4.0,** Popular Music on Gramophone Records. **4.40,** Talk on Bronislas Pilsudski. **5.0,** Light Music on Gramophone Records. **5.35,** News. **5.45,** Topical Talk. **5.55,** Programme Announcements. **6.0,** Divine Service, relayed from **Czenstochowa. 7.0,** Miscellaneous Items. **7.20,** Agricultural Report. **7.30,** Topical Talk. **7.45,** Radio Journal. **8.0,** Concert by the Station Orchestra, conducted by S. Nawrot. Soloists: A. Szleminska (Soprano) and A. Stanislawsky (Mandolin): Polonaise in B Flat (Oginsky-Lefeld); Overture (Kurpinsky); Oberek (Wiehe); Soprano Solos; Bells across the Meadow (Ketelbey); Burlesque Intermezzo (Culotta); Mandolin Solos: (a) Humoresque (Dvorak), (b) Waltz (Karasinsky); Romantic Suite (Armandola); Soprano Solos; Waltz Fantasia (Glinka); Overture, Die schöne Galathee (Suppé); Mandoline Solos: (a) Song without Words (Tchaikovsky), (b) La Cinquantaine (Gabriel-Marie), (c) Polka-Mazurka (Rotter); Waltz Intermezzo, Was Blumen träumen (Translateur); Oriental Scene (Armandola); Cracovienne (Leopold); Waltz, A toi (Percy-Elliott); Mazurka (Namyslowsky). In the interval, Sports Notes and Radio Journal. **10.5** Chopin Pianoforte Recital by J. Turczynsky: Scherzo in B Flat Minor, Op. 31; Polonaise in E Flat Minor, Op. 26; Two Waltzes: (a) in D Flat, Op. 70, (b) in E Flat, Op. 18; Three Mazurkas: (a) in C Sharp Minor, Op. 50, (b) in B Minor, Op. 17, (c) in B Minor, Op. 33; Reverie. **10.40,** Reading. **10.55,** Aviation Weather Report and Police Notes. **11.4** Dance Music, relayed from the Bodega. In the interval at **11.30,** News for Members of the Polish Polar Expedition.

ZURICH.—See **Schweizerischer Landessender.**

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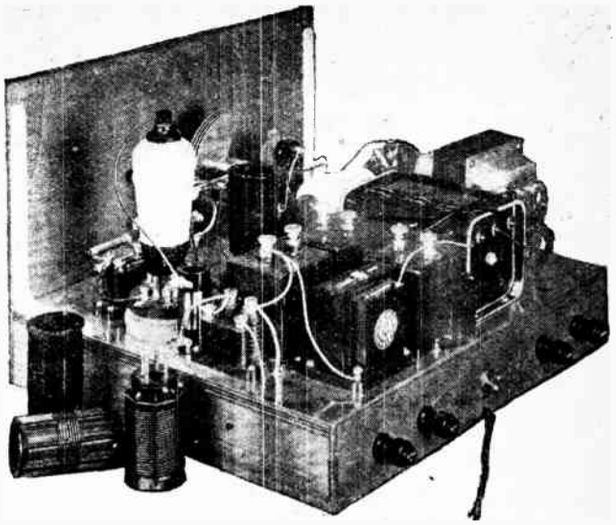

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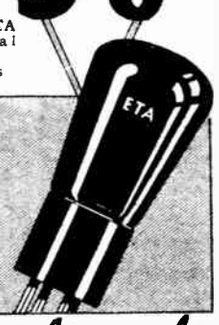

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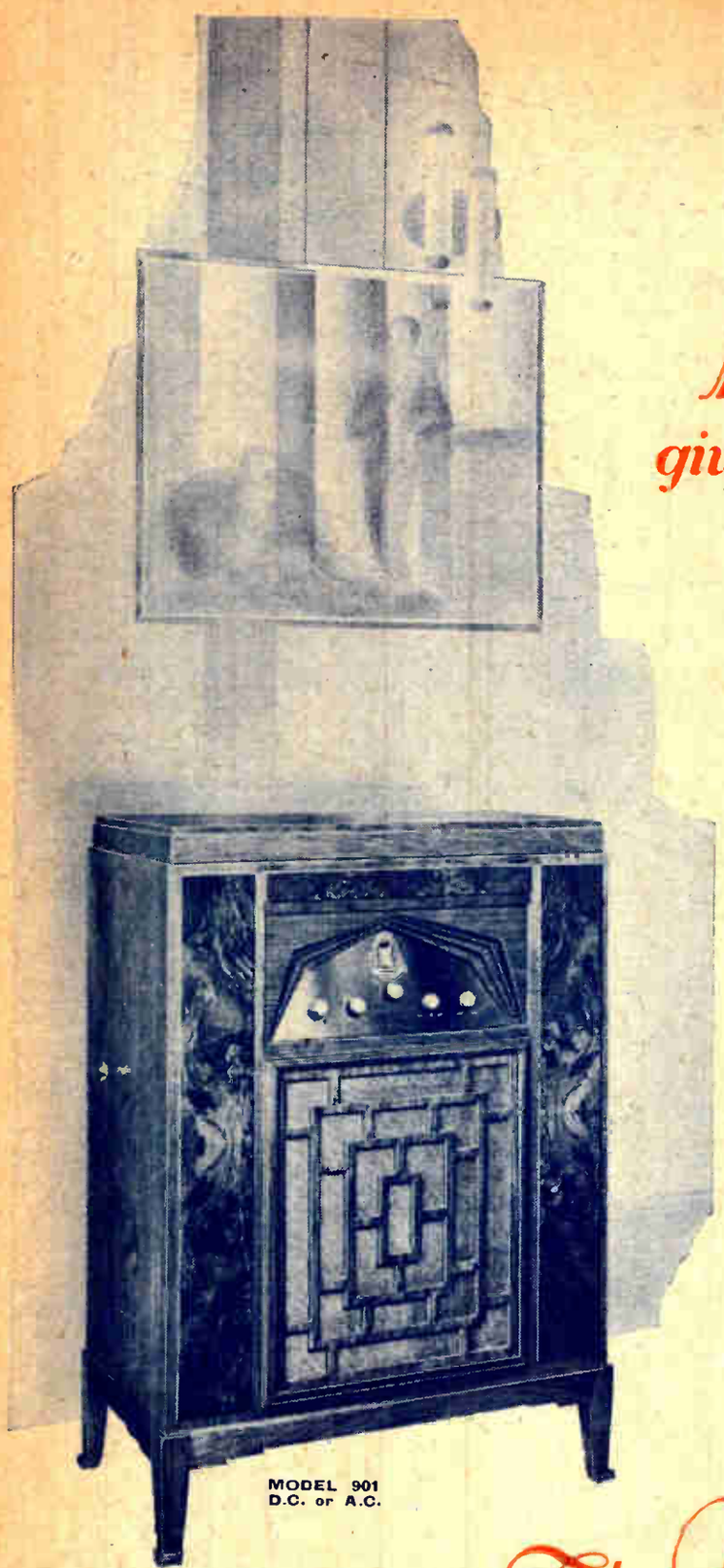

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